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DREAM PSYCHOLOGY
AND
THE NEW BIOLOGY OF DREAMING

DREAM PSYCHOLOGY AND THE NEW BIOLOGY OF DREAMING

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To My Parents: Rose and Abe Kramer

Foreword

THIS IS A BOOK of high quality, a report of a most successful and stimulating symposium, a record of a unique and significant event. In fact, as the present writer began to work on this Foreword, he could feel a recurrence of the warm glow of pleasure and enthusiasm he had experienced at the time of the symposium.

But the glow, this time, was followed by a faint chill of skepticism. Perhaps a glowing expression of high praise and of pleasure and enthusiasm is not altogether appropriate in a Foreword to a volume of scientific papers and discussions. Perhaps such an opening paragraph calls for a half-serious, half-teasing reconsideration, a double take.

Such a biphasic process, in the first paragraph and the second, can be regarded as an example of the emphasis on ethics in the world of science today. A new ethical principle was invoked: that any writer of a foreword who begins with an ebullient paragraph, expressed in superlatives, must stop after the paragraph, look at it carefully, and listen to his own feelings. For a moment, he must be skeptical of his forewording. He must be curious about his motives as they might affect his judgment of the book which is to follow his opening words.

Such an approach, one that requires even a foreword-writer to use a process of self-scrutiny, is one of the spin-off products of the serious studies of sleep and dreams, studies which have included some of the most effective examples of self-scrutiny ever done. But in a case of the minor misbehavior of using ebullient words in a foreword, the self-scrutiny can be brief, albeit stringent and rigorous. Such a major process, applied in this minor way, must be accompanied by an unseen nonverbal gesture, preferably bilateral, of tongue in one cheek and then in the other.

Several moments have gone by, and the process is over. It is pleasant to report that the syndrome of high pleasure and fervid enthusiasm has been clarified. Its basic meanings became apparent rather quickly to the inward observation, that is to a second REM technique, hitherto unnamed, "Rapidly Eyed Motivation." Only a modicum of free association was needed. Neither the classical REM state nor classical dream interpretation was needed.

The first finding of the self-scrutiny was that "home-town narcissism" was playing a dynamic role. Some of the writer's high level of pleasure and enthusiasm was a direct expression of pride in the role of the University of Cincinnati Medical Center (especially the Medical School and the Veterans Administration Hospital) in organizing and arranging the symposium, with the help of the National Institute of Mental Health. And the high level of enthusiasm was an expression also of home-University, home-Department of Psychiatry pleasure in the achievements of the Cincinnati Dream Research Team, of Roy Whitman, Milton Kramer, Bill Baldridge, Paul Ornstein, and others.

In sum, the Rapidly Eyed Motivation technique revealed that pride played a role in producing some of the high level of the pleasure and enthusiasm about the symposium. Of course, that pride was objective, legitimate, and justified. But the writer must say, with the usual shame over an error of omission, that his ego functions should have prevented his home-town pleasure from having an impact on his objective evaluation of the symposium itself.

So a belated ego-process now takes place, and these two areas now are separate. The result, after a careful weighting of the variables, is a decrease of 10 per cent in the Foreworder's high evaluation of the symposium.

With the resolution of his motivational dissonance and with tongue no longer in cheek, the writer can say that the symposium as it occurred was a major success and that readers of the book will find it so as well. It was not only that the presentations were of high caliber, and the discussion productive, but also the pace was good, the content varied and creative, the

assertions well-documented, and the scientific conscience clearly in evidence.

Further, an important source of the success of the symposium was the fact that inherent in its planning and its content was a set of dramatic confrontations of one body of knowledge with another, of clinician with nonclinician, of experimenter with therapist, of the normal equivalent of impressionistic hysteric work with the normal equivalent of precise compulsive work, of classical notions with contemporary ones. The most important, of course, was the confrontation of a highly productive physiologic approach with a highly productive psychodynamic approach.

Finally, the crucial factor in making the symposium a success was that most of the differences, the confrontations, and the potential conflicts eventuated in a type of resolution which is not always reached when the participants in a meeting are as active, energetic, and creative as were the participants in this one. The differences were clear and not glossed over. Disagreements were expressed vividly. But the end point was not of overstatements refuted by overstatements. The end point was not an inappropriate adversary system. The end point was neither hostile aggressiveness nor passive submission, neither victory nor defeat.

Rather, to an unusual but still human degree, the end point in the symposium and in later conversations was a series of interactions which largely were beyond the adversary system. In fact, at many points the pattern of this meeting deserved to be called a productive tension between opposites. This symposium was, in truth, a "creative dialogue."

MAURICE LEVINE

Preface

It seemed essential to those of us primarily interested in the psychology of the dream to focus attention on the psychological processes occurring during both activated and slow-wave sleep. Since the discovery by Aserinsky and Kleitman in 1953 of an objective indicator of dreaming sleep, there has been a plethora of studies investigating the physiological parameters of the dreaming and nondreaming sleep states. However, there has been an unfortunate neglect of the psychological concomitants of these states in most of this work.

A symposium which would bring together workers interested in the psychology of dreaming with those who have worked with the Rapid Eye Movement (REM) technique for the collection of sleep mentation seemed desirable if the understanding of the psychology of dreaming was to keep pace and be integrated with our ever-increasing physiological knowledge. The ability to detect the time of dreaming allows us to collect dreams closer to their occurrence and to bypass the vagaries of dream recall. Potentially, many of the untested assumptions about the psychology of dreaming become available for controlled study.

The approach in planning this symposium was to focus initially on the classical views of the nature of the dream as seen in the light of the new findings coming from the REM studies. The subtheme for this part of the meeting was, "The Challenge Posed to Dream Theories by the New Biology of Dreaming." The second half of the meeting was devoted to an examination of various dream-content studies and problems. The subtheme for this part of the meeting was "Problems in Dream-content Analysis." This plan led naturally to the choice of participants coming from two groups, those who have articulated theoretical statements about the psychology of the dream and those who have examined dream content in various experimental ways.

It was hoped that the interaction between these two sets of workers would lead to further reintegrative efforts on both sides—those of the theorist and those of the experimentalist.

It was our concern about the lagging interest in dream psychology which led our dream-research group in the Department of Psychiatry at the University of Cincinnati to plan the symposium on "Dream Psychology and the New Biology of Dreaming." The meeting took place in Cincinnati on October 21 and 22, 1967. The papers in this volume are those which were presented at that time. How well we all—planners and participants—reached our goal, you, the reader, may judge for yourself. Our most personal interest in the dream is best captured by Dr. Milton Miller's poem:

One mystery alone remains
Of my beloved's sleep:
We've solved the movement of her eyes
And why they do repeat,
We know what brings her breath in sighs,
We've tracked her EEG;
The haunting doubt that still remains
Is does she dream of me?

Cincinnati, Ohio MILTON KRAMER

Acknowledgments

IT IS APPROPRIATE to first express my appreciation to my colleagues in dream research at the University of Cincinnati: Drs. Roy M. Whitman, Paul H. Ornstein, and Bill J. Baldridge. The challenge and stimulation they have provided since the beginning of our association bears partial fruit in this symposium and this publication. My acknowledgment to them is one of deep gratitude for all they have done.

There would have been no meeting but for the willingness of all of the participants who are appropriately listed on the page of contributors. They truly deserve the editor's thanks for their high level of cooperation and performance as well as for the fine quality of their contributions.

A special thanks is owed to Dr. Maurice Levine, Director of Psychiatry at the University of Cincinnati. It is in his department that the efforts of our dream-research group have been encouraged and supported for the past eight years. He was most gracious in agreeing to participate in the symposium and to lend us his counsel and support. And to my friend and colleague, Dr. Harold Hiatt, Chief Psychiatric Services, Veterans Administration Hospital for his encouragement in the development of a Dream Laboratory at the Veterans Administration Hospital and for his continued interest and help, a word of real thanks is in order.

Three institutions provided direct and indirect financial assistance which made it possible for us to have such an array of participants. My thanks go to Dr. Clifford G. Grulee, Jr., Dean of the College of Medicine of the University of Cincinnati; to Mr. Lorenzo M. Gunter, Director, Veterans Administration Hospital, Cincinnati, Ohio; and to Dr. Albert A. Pawlowski, Chief of the Small Grants Section, Behavioral Sciences Research

Branch, National Institute of Mental Health. The institutions these gentlemen represent provided the necessary financial support for this undertaking and they themselves provided the flexible understanding which allowed us to utilize the support.

A note of thanks is due my past and current secretaries, Mrs. Arlene Wolpa and Mrs. Margaret Holladay. Their attention to the innumerable chores attendant on arranging for the symposium and in the preparation of this volume made the editor's task a simpler one. And to my friend and editorial assistant, Mrs. Dorothy Bilik, a word of praise and a deep feeling of gratitude for her help in editing the original manuscripts, in preparing the references and in endless proofreading. Only a pleasure in words and the reward of helping a friend can really compensate her.

Finally, to my support and critic in this and other undertakings, my wife, Fradie: The time and effort she so graciously gave to assist me in the preparation of the symposium and its proceedings were of incalculable help. Her willingness to corral the gang—Ruth, Dan, Mary, and Sam—and let Dad work made this undertaking possible.

Introduction

THE DREAM IN BEHAVIORAL SCIENCE

IT IS A GREAT HONOR for me to open this important symposium by presenting an overview of the dream in behavioral science. I am grateful to those who invited me, and I know that I speak for all the participants when I note the suitability of locating such an exercise in Cincinnati.

Twenty years ago, Dr. Maurice Levine became professor and chairman of the Department of Psychiatry at the University of Cincinnati College of Medicine. Under his leadership, Cincinnati quickly assumed a position of distinction in psychiatric education and research. The clinical and theoretical interest in dreams that was generated in Dr. Levine's department led to a prompt recognition here of the significance of bioelectrical correlates of dreaming sleep discovered and developed since 1953 in the laboratories of Nathaniel Kleitman at the University of Chicago by such astute observers as Eugene Aserinsky, Joe Kamiya, and William Dement. To the Cincinnati psychoanalytic investigations of dreams, the new physiological methods were quickly added. Thus, dream research at Cincinnati—spearheaded by Roy Whitman, Milton Kramer, and their colleagues—has been significant and continuous for more than a decade; and Cincinnati is an eminently appropriate location for a colloquium of workers in the field of dream theory, together with those who are employing psycho-

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Note: This paper was prepared in part during the author's Fellowship (1966–1967) at the Center for Advanced Study in the Behavioral Sciences, 202 Junipero Serra Boulevard, Stanford, California, and was also supported in part by N.I.M.H. Senior Stipend No.: 1-F3-MH-35063. Both sources of support are gratefully acknowledged.

physiological and biophysical techniques to explore the mysterious land of sleep and dreams.

It was also twenty years ago that good fortune brought into my hands Dr. Levine's great book, *Psychotherapy in Medical Practice*, a work that I still recommend to my students as a classic. This volume powerfully influenced me to pursue a career in academic psychiatry. And it was quite early in my career that my interest in research on dreams and dreaming began, stimulated by commitment to a line of inquiry perhaps best described as human experimental psychopathology.

Inspired by the extraordinary success of experimental pathology in the illumination of cause-and-effect relationships in physical disease, I thought it logical to extend the same basic strategy to behavioral aberration. The classical experiments of Pavlov and exciting reports from investigators like Richter, Liddell, and Masserman made it clear that animal studies along such lines were feasible; however, the inevitable arguments concerning the limitations of animal studies in explication of the uniquely human aspects of mental illness were already raging. In deciding to consider a characteristically human model for the laboratory study of psychopathology, the dream immediately suggested itself. For the dreamer, in his awareness of primary-process thinking, normally experiences something that in wakefulness would be symptomatic of madness: loss of contact with reality; disorientation from time, place, person, and self; and, of course, hallucinations.

Starting with the historically obvious method of hypnosis, I have been pursuing this line of inquiry since 1950. And, in the thirteen years that I have been concerned with psychiatric research at the University of Oklahoma Medical Center, we have been attempting to produce dreamlike experiences in normal subjects by a variety of techniques including hypnotism, hallucinogenic drugs, monotony, sensory isolation, other manipulations of information input, and sleep deprivation. We have studied hallucinatory and other dreamlike phenomena in psychiatric patients with conditions ranging from toxic delirium and epilepsy to schizophrenia and the dissociative reactions,

and we have continually undertaken to understand more about sleep and its component phenomena in individuals from birth to senility, in medical patients with a variety of diseases, and in animals ranging in size from seven ounces to seven thousand pounds.

During this same period of time, a steady development of behavioral sciences in medical education at the University of Oklahoma Medical Center has transpired. For more than ten years, a formal Division of Behavioral Sciences has existed there in partnership with Psychiatry and Neurology. Behavioral Sciences has grown to be larger than many basic science departments, to have more Ph.D. candidates than there are residents in psychiatry, and to provide more than two hundred hours of formal classroom instruction for every student of medicine.

With this combination of factors at work, I could hardly help giving considerable thought to the role of the dream in behavioral science—past, present, and future. During the last dozen months, as a Fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford (which for me has been a veritable dream tank as well as a think tank), it has been possible to reflect even further on this question. Today, transported from that dreamy California hillside, I shall do my best to pull some of these thoughts and dreams together and to share them with you, my good friends, colleagues, and fellow dreamers.

Before one places the dream into perspective in behavioral science, it might be well to define both. Immediately this presents a substantial problem. Our behavioral science curriculum at Oklahoma includes material drawn from philosophy of science, general psychology, sociology, cultural anthropology, ethology, human ecology, growth and development, and selected areas from biological science including genetics, physiology, pharmacology, biochemistry, and biophysics. When the journal *Behavioral Science* appeared more than ten years ago, most of these fields were represented on its editorial board, as well as political science, economics, education, and mathematical

biology. An even broader spectrum appears among the Fellowship at the Center for Advanced Study in the Behavioral Sciences, where professors of law and history outnumber the psychiatrists by more than two to one. Suffice it to say, for the purpose of this symposium, that behavioral science is a sweeping concept still very much in evolution, even while its research is finding application everywhere from education to urban planning to space medicine to television advertising to international power politics to sleep and dreams.

An even more difficult assignment is to define the dream. It would be tempting to discuss it phenomenologically, were it not for the fact that Drs. Lehmann and Straus bear this assignment. For the purposes of my discussion, I shall distinguish between the dream and the measurable events that can be stated to accompany dreaming in terms of probabilities. This combination of verifiable events I shall call the D-state, as a gesture of respect to Hartmann, Bowers, Freedman, and others who favor that term but who are not on the program. However, the D-state is not the dream.

Dreams have always been of great cultural significance to mankind, in a variety of ways. Their significance is reflected in our literature: one book of familiar quotations gives 69 references for eating; for war and fighting together, 184; for sleep and dreams, 410. (You will be happy to know that love and loving provides more than a thousand, hate and hating fewer than a hundred; there is hope for us yet.) Among such quotations regarding dreams and dreamers, many of their characteristics and much of their presumed significance have already been defined by the poets. Dreams are transient, evanescent, fleeting, impossible to seize; they call up the past and offer thereby an escape from the present; they contain our aspirations and hopes, our apprehensions and fears, our discoveries, our problems and their solutions; they reveal the faces of our lovers and our enemies; they explain the past and may predict the future—although you take dangerous chances if you believe such predictions and "follow the dreamer of dreams."

In this symposium, we shall hear much about the nature of the dream. It is not my purpose to enter deeply into such a discussion here. Suffice it to say that I am wary of either tautological or teleological explanations of dreaming; I am uneasy at the idea of defining the dream's "function" or "work"; and "safety valve" formulations leave me squirming.

A dream is an evocation, not an event. Let me be bold enough to discuss the dream in terms which await experimental verification. As I see it, the dream *reflects* a function rather than serving one; passes through awareness as a *result* of biological energetics or "work," rather than doing "work" itself; is an *effect* rather than a cause of the ninety-minute cycle—which itself reflects a homeostatic mechanism that subserves the requirement for safely providing the organism sufficient periods of restorative sleep to insure survival. Thus in my view, the dream does not exist in order to provide an outlet for the discharge of primary-process or instinctual energy; rather it represents an epiphenomenon of that fundamental periodicity, as yet poorly understood, which perhaps is basic not only to the maintenance of sleep during the night but also to the maintenance of alertness during the day—a periodicity with feedback characteristics being the stuff of which all homeostatic mechanisms are made. Despite the temptation to do so, we shall not be likely to unravel the basis for this periodicity until the precise nature of the sleep requirement itself is defined.

Thus, it is easiest for me to conceive of the dream as an experience that occurs when the necessary and sufficient neurophysiological conditions cause it to occur. During sleep accompanied by rapid eye movements, these conditions (which combine inhibition of incoming information with cortical activation of the type which permits awareness) are highly likely to obtain, and the content of such awareness will in fact correspond with the nature and quality of that information which is continually being processed by the living human brain in what Kubie has called the preconscious stream. Dreaming, then, is the process of sensing this information during such

special periods of awareness; and the dream is the existential experience itself.

The comparative psychology of the D-state has recently been extended in terms of phylogenetic concepts by Snyder in his studies of that living fossil, the opossum. But there are other shores of comparative sleep research that are open to the first explorers who choose to land there. The relationship of eye movements to the function of vision, for example, is not yet clear. Are there involuntary movements of other muscles relating to information input during the dreams of those individuals or creatures whose contact with the environment is not primarily visual? Do those blind people who dream in braille have finger movements rather than eye movements during the D-state? The current evidence is confusing. Even if the blind eye moves during the D-state in a human whose nervous system is organized to give high priority to visual stimuli (Pierce *et al.* found eye movements in a blind anencephalic monster!), how about the animal that is primarily responsive in nature to information mediated by other sensory systems? I have long suspected that elephants have ear movements and perhaps trunk movements during sleep, but who can say how these are related to the D-state without applying the necessary techniques? Surely someone has thought to monitor the tiny muscles controlling the vibrissae of the rat during the stages of sleep, but I have not yet heard the results. As the comparative physiology of sleep proceeds and we learn more about the function of, and requirement for, sleep in different types of brains, the role of the D-state and perhaps even of the dream experience in certain animals may be clarified to our considerable edification as behavioral scientists.*

Developmental research on dreaming is, one might say, in its infancy. Many basic issues here must be resolved. Are the occasional eye movements seen at birth truly a reflection of anything resembling the dream experience? If not, how long

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*Since the symposium, Shurley *et al.* from the Oklahoma laboratories have identified nocturnal electroencephalographic periodicity, with sleep accompanied by rapid eye movements in the whale.

does it take for new information to become combined with preprogrammed information in the processing system of the human brain—sensory experiences superimposed upon the cycle of the D-state, as it were—so that periodic visions are seen through the night during sleep? Roffwarg's work on the newborn is instructive and will soon be greatly extended through longitudinal studies. Meanwhile, B. K. Lester has developed data (not yet published) to suggest very strongly that dream experiences of the information-playback type with substantial duration and adult-like periodicity appear as a rather specific developmental phenomenon around twelve weeks after birth in normal children, while in his only case of mongolism studied to date the same phenomenon did not appear until eighteen weeks. Among Lester's most fascinating observations are those of synchronous periodicity during sleep of nursing babies and their mothers, so that they tend to dream simultaneously during the night from twelve weeks postpartum until after the time of weaning; nonnursing mother-baby diads show no such time-binding or mutual entrainment of the dream cycle.

In closing, let me extend the method of prophecy to the problem at hand, and undertake to foresee some ways in which dream research may relate to basic and applied behavioral science in the future.

Sociocultural research has not begun to tap the pool of possibilities offered by the dream. It is well known that cultural factors are significantly represented in dream content, and that dreams are in fact much more seriously contemplated by many primitive people than they are in the Western World. But cross-cultural studies remain to be undertaken in which the total spectrum of phenomena related to dreams, dreaming, and the D-state shall be compared between people whose societies differ significantly with regard to such variables as racial stock, climate, or sidereal periodicity. For example, how do equatorial tribes sleep and dream differently from people who live near the poles? The former enjoy relatively constant environmental diurnal rhythms; the second are required to adapt to the long day of summer and then the long night of

winter every year. J. T. Shurley and C. M. Pierce are pursuing some of these questions even now in expeditions from the University of Oklahoma to the Antarctic.

Research on sleep will soon lead to a universal appreciation of how sleep provides a unique "window" through which to assess basic facts about the state of the organism. It may well develop that sleeping has two functions: (1) to dissipate certain metabolic products that have accumulated in the brain during wakefulness and (2) to replace certain necessary substances used up during wakefulness. The first or catabolic activity will be shown to transpire mostly during slow-wave sleep, while the second or anabolic phase occurs during fast-wave or paradoxical sleep. Thus the syndrome of sleep deprivation will prove to be both an intoxication and a deficiency state. Furthermore, certain psychotic syndromes in clinical psychiatry may eventually be found related to intoxication by the first substance, or to deficiency of the second substance, incurred through pathological disturbance of the normal restorative capacity of sleep. At the same time a highly complex analysis of the bioelectrical events occurring during sleep will yield a much more detailed classification of "stages." There may be half a dozen different types of what we now call "stage IV" sleep, several of which are already becoming apparent. Sleep analysis will be *de rigueur* for research in psychopathology in the future.

Progress in sleep and dream research will be related to a resurgent interest by psychiatrists in problems of consciousness, including areas—such as epilepsy—long neglected. Every young psychiatrist will soon understand how to employ computerized electroencephalogram analyzers, as well as the corresponding successors to electromyography, electrooculography, rheoencephalography, DC shift recordings, and the cortical-evoked potential displayed by computers of average transients (CAT's). These devices will be widely utilized in clinical research on a variety of issues, ranging from measurement of changing psychopathology to prediction of behavioral response patterns. The meaning of any given set of recordings will be

obtained by processing it in relation to the vast "banks" of interpreted bioelectrical recordings that will be centralized, perhaps at NIMH or at one of many research extensions of today's MEDLARS technique of information storage at the National Library of Medicine.

Scientists may soon be working on the development of a "bloodless electrostereotaxy" of the human brain. From this may come the development of tiny semibiological two-way transmitter microelectrodes, perhaps biologically linked to specific tagged molecules statistically bound for given areas of the brain. Introduced by the intracarotid route, thousands of these minute stations spread through the brain could send out information to be received and displayed (in a stereo-analogue model) or digitized for processing. Their two-way characteristics of course would permit stimulation of selected areas by the experimenter without his inserting needles into the head.

Advances such as these would, of course, permit experiments that could add greatly to our understanding of the D-state. But comprehension of the dream as a total human experience will not come so quickly. It will be conceptually more difficult. We shall be required to guard against taking the easy way out by assuming that, because we have correctly labeled the correlates of a dream, we have come to understand it. Dreams will surely be such stuff as research in behavioral science is made on, for many years to come.

LOUIS J. WEST

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PART ONE

The Challenge Posed to Dream Theories by the New Biology of Dreaming

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DREAM PSYCHOLOGY
AND
THE NEW BIOLOGY OF DREAMING

Part One

The Challenge Posed to Dream Theories by the New Biology of Dreaming

I

Introductory Remarks

W. D. Ross

Dr. Kramer, in his Preface, set the tone for a subtheme for the first section of the symposium which might be labeled "The Challenge Posed to the Poets by the New Biology of Dreaming." I am not going to resort to Shakespeare's too-often-quoted words about dreams, but I am going to see whether the poets can rise to the challenge to make pertinent subtitles for the first two chapters and their discussions. Subtitles will appear as footnotes on the opening pages of contributions to section I.

Chapter 1

The Physiology of Dreaming

FREDERICK SNYDER

"A pleasant land of drowsy head it was,
of dreams that wave before the half-shut eye."*

—THOMPSON, *The Castle of Indolence*

IN THE YEAR 1867, one of the outstanding figures in the early history of psychiatry made a curious statement. Wilhelm Griesinger[40] remarked, "One cannot observe on oneself how the eyes move with the pictures and fantasies of our dreams. I believe, however, that with vivid dreaming movement of the eyes occurs . . ."† I should like to begin by musing just a little about what might have happened if Griesinger or his contemporaries had pursued that prophetic hypothesis simply by watching sleeping persons very carefully. With all likelihood, they would have discovered—as Aserinsky and Kleitman did eighty-five years later—that there are regularly recurring intervals during each night of sleep when the eyes verily come alive in darting movement beneath their closed lids, and that such are also times of other plainly visible and almost equally striking bodily changes. Surely someone would have tested

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* Poetic subtitle offered by W. D. Ross:

†"Wie sich die Bulbi bei den Bildern und Verstellungen des Traumes verhalten, kann man nicht an sich selbst beobachten. Ich mochte aber glauben, dass bei einer gewissen Lebhaftiqkeit der Vorstellungen eine Mitbewegung der Bulbi entateht, dass es dann aber auch bald zum Erwachen kommt." [40]

The intuitive plausibility of this idea is indicated by its repeated emergence,[48, 69, 73] apparently quite independently.

Griesinger's hypothesis by awakening people at these times, and unless we are greatly mistaken, would have been rewarded then by detailed and vivid accounts of dreams. With Germanic thoroughness, comparable examinations on the sleep of other animals undoubtedly would have been undertaken, uncovering entirely similar but still more dramatic manifestations, and perhaps altering the entire history of neurophysiology. If so, would Freud's interest in dreams have taken the direction it did, or would he have been entirely caught up in the quest of their neurological mechanisms? Then, alas, there would be little reason for a volume such as this one.

That Griesinger's observation went unheeded may illustrate the inscrutable logic of history, for without the miraculous instruments of an electronic era we would be unlikely to believe our eyes concerning these strange phenomena, nor would we be inclined, without Freud's revelations regarding the profound psychic significance of dreams, to invest so much effort in studying them. If the developments of the past fifteen years had begun a century ago, would it now be possible to speak of a "physiology of dreaming" without much less literary license, or alternatively, is it possible that the only mark left on our time might be occasional references to a quaint and long-discredited nineteenth-century idea that dreaming is associated with a distinctive biological state?

When I first put forward that notion five years ago in a paper entitled "The New Biology of Dreaming,"[99] the reaction I least anticipated was that it would be so casually accepted. Even our own dauntless age should not so demean the supreme enigma of how mind and body relate. Therefore, in taking up the topic which Dr. Kramer has assigned to me, I wish to make explicit the attitude of questioning and uncertainty that I thought had been implicit in my earlier discussions.

Probably all of us now accept the premise that any mental event must have some manner of unique and distinctive physical correlates within the brain, but it is obvious at the outset that in this sense the idea of a "physiology or dreaming" is no more than a hypothetical concept, as remote from any existing

knowledge as is similar comprehension of the physiology underlying perception, memory, or thought itself, all shared by dreaming and waking alike. So my title can mean no more than that perhaps *something* has been learned about physiology at least *somehow* related to the physiology of dreaming, but whether even that is so rests upon a whole chain of inferences, each posing its own peculiar challenges. The basic problem is that physiological correlates of dreaming cannot be established with any more assurance than can the occurrence of dreaming, and while the advanced physiological methods I can mention are almost completely restricted to studies of nonhumans, thus far only people have told us about dreams.* The only possible basis for linking these two kinds of information is by the argument of similarity between certain peripheral physiological measures accessible in humans and their animal counterparts, involving the uncertainty of any inferences across species. Even within our own species, however, the relationship of these peripheral physiological events to dream reports is by no means unequivocal, and their relationship to that which we might expect them to correlate with, the phenomenal experience of dreaming, is vastly more uncertain. In short, this is a subject for people who prefer intriguing problems to definite answers, but I take comfort from the assumption that this is so of anyone seriously interested in dreams.

There would be no reason for mentioning animal studies in this context if it were not that the physiological characteristics of sleep and waking can be described in precisely the same general terms in any mammal. The common behavioral criteria, long intervals of immobility with closed eyes and reduced responsiveness, are accompanied by a host of common physiological changes—the most distinctive being the change in electroencephalogram (EEG) patterns from the low voltage, relatively fast rhythms of waking to the slower and larger wave forms of sleep. This is true in all of the dozen or so divergent

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* The report of Vaughan [107] that monkeys trained to lever press in response to patterned visual stimuli did so during intervals of apparent sleep suggests that some evidence of dreaming might be obtained from experimental animals.

mammals thus far studied, and it is equally consistent that sleep, as so described, is periodically and abruptly interrupted by another physiological constellation appearing as distinct from such sleep as sleep is from waking.* In all forms, this "third state" is characterized by reversion of the EEG to patterns more like those of waking, by the intermittent occurrence of rapid and conjugate eye movements, by increased irregularity of peripheral autonomic measures (such as pulse and respiration and blood pressure), by sporadic muscular twitches particularly evident about the face and distal extremities, and by either a specific diminution of tonus in certain muscle groups or at least levels of muscle tonus as minimal as those found at any point during sleep. The last is particularly important both theoretically and practically, for without it we might be inclined to think of this condition simply as an intermediate state between waking and sleep and it would often be difficult to distinguish its polygraph record from that of waking.

What we should call this peculiar physiological condition in the midst of sleep but quite different from it remains so undecided that I have stopped counting the number of ways it has been referred to in the literature. (At my last reckoning, it approached two dozen.) I shall continue to use the term *rapid eye movement state*, usually abbreviated REM state both because it seems descriptively and historically appropriate, and because it is appropriately noncommittal. I quite agree with the philosopher Malcolm[71] that one thing we should not call this is "dreaming," for regardless of the correctness of the implication, that word belongs to the realm of phenomenal experience, and to use it otherwise could only result in confusion.

Beyond descriptive similarity of this REM-state constellation among mammals, certain functional similarities have been

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* Thus far the forms examined in this context include man,[4] cat,[21] dog,[97] rhesus monkey,[110] rat,[74] rabbit,[29] sheep,[52] goat,[95] chimpanzee,[1] mouse,[109] opossum,[100] guinea pig,[72] and baboon.[12] Whether this is a peculiarly mammalian phenomenon, or whether it also occurs in other vertebrates is still uncertain. A very fleeting condition that may be equivalent has been described in the sleep of birds,[66] and eye movements have been noted during sleep in chameleons.[105]

found wherever they have been sought, such as its outstanding predominance in the newborn phase of life,[91] or that when it is artificially prevented from occurring for varying intervals it returns with correspondingly heightened urgency, prepotency, and vigor.[23]

Nevertheless, within this broad characterization there are unique species features of this state, as well as what now seem to be important functional differences. Therefore, perhaps we should discuss the physiology of dreaming entirely in terms of peripheral measures obtained from man, as Dement did in his pioneering thesis almost a decade ago.[22] But to do that now would be at the cost of ignoring a remarkable accumulation of neurophysiological information delineating what more and more appears to be one of the most extraordinary phenomena yet recognized in the natural functioning of the central nervous system. Fortunately, a very comprehensive and authoritative review of these developments has now been provided by Jouvet[55] since I can do no more than quickly summarize some of the most salient aspects.

When depth electrodes are placed in the brains of experimental animals, the electrical patterns recorded during the REM state do not so much suggest those of ordinary waking as they do an exaggerated version of those during the most hyperalert states of intense arousal. The same, very fast, desynchronized activity recorded from the cortex is also found in the diencephalic and mesencephalic reticular formation, while a very different rhythmical pattern of slower waves emerges from the hippocampus, like that seen during aroused attentiveness but slightly faster and much more continuous.[55] Against this background of tonic patterns prevailing throughout each REM period, there is also an intermittent or phasic pattern, usually but not constantly coincident with such external phasic events as the eye movements, muscle twitches, and vegetative irregularities. That pattern has the appearance of large and abrupt electrical spikes in groups of five or six within certain discrete brain areas, first in the pontine reticular formation, then in the lateral geniculate nucleus, occipital cortex, superior colliculus

and oculomotor nucleus, and finally in the pulvinar and parietal cortex—a distinctive electrical signal appearing during this condition in the visual and associational cortex and visual-motor way stations but originating in the pontine brain-stem.[55] With appropriate electrical stimulation in that brain-stem region, it is possible to trigger the same pattern throughout its usual distribution, but this is possible only during REM states.[13]

On the other hand, very similar and probably identical patterns occur spontaneously, but much less frequently throughout sleep,[55] and perhaps during waking as well, in association with eye movements.[16, 19, 30]

With still more refined techniques employing microelectrodes, it is possible to record the discharges of single neurons or the integrated firing of groups of neurons, and such means directly confirm that REM is a state of intense neuronal activity, like waking arousal. In the early sixties, these observations were first made in the midbrain reticular formation[46] and visual cortex,[27] so that then, if ever, it might have seemed that the central correlates of a hallucinatory process were within our sights. Such an interpretation is now less obvious since the same state of affairs has been found almost everywhere it has been sought throughout the brain,[3, 7, 14, 81, 94] one interesting exception being the great pathway of integration between the two hemispheres, the corpus callosum.[11] The diffuseness of this intense activation during REM is further indicated by elevations of brain temperature[16, 62, 86 *] as well as by increases in blood flow.[59, 64] In fact, Kety and his colleagues[64] now report that blood flow practically doubles throughout the gray matter of the brain during REM, a magnitude of change previously found only during Metrazol® convulsions.

Comparison of REM with convulsive states is productive in other respects also, particularly with regard to a general heightening of brain excitability. This is demonstrated by increase in peripheral motor responses to direct stimulation of the cor-

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* In the rabbit, at least, there is new evidence that the increase in brain temperature may simply reflect peripheral autonomic changes affecting heat exchange with the environment.[5]

tex,[44] by increase in discharges elicited by local applications of strychnine to the cortex;[77] and, as shown in numerous studies, by increased cortical responses to stimulation of specific afferent pathways or thalamic nuclei.[55] Another probable indication of increased neuronal excitability is the finding of Evarts that the temporal patterning of discharges in pyramidal tract neurons during REM takes the form of intense bursts separated by intervals of unusual silence, profoundly different from that of waking arousal.[28] Whether this is a characteristic of neuronal activity during REM in other brain regions remains to be determined, but it is very similar to a phenomenon just described in the cerebral cortex of immature kittens even during waking.[47] This is the latest of many reasons for suspecting that REM reflects a relatively primitive condition of nervous function.

The earliest and now one of the best confirmed indications of that primitiveness is the finding of Jouvet and his coworkers that the periodic occurrence of this state does not depend upon the cerebral cortex, or any other portion of the higher brain, but requires only the involvement of certain nuclei in the pontine brain-stem.[56] That surprising conclusion, orginally reached by studying the effects of various lesions, has now been confirmed by the same means[17, 93] but is further supported by the effects of local and temporary, pharmacological ablations,[92] by demonstration of differential increases in blood flow in that region during REM,[6] and, of course, by the origin there of the very distinctive electrical wave form earlier described. At present, still more discrete anatomical structures are being implicated in the various peripheral manifestations of the REM constellation (e.g., the crucial relationship of certain vestibular nuclei to the bursts of eye movements, muscular twitches, and autonomic irregularities).[83] Most advanced is the study of mechanisms whereby this intense cerebral enlivenment is disconnected from external motor expression. Both the marked reduction in postural muscle tone and the equally dramatic reduction in spinal reflexes associated with REM[43, 106] have now been shown to depend upon an active inhibitory process originating in the brain-stem,[35] and reports from Jouvet's lab-

oratory in the past few years pinpoint the source of that inhibition to a tiny noradrenergic nucleus within the pontine region, the locus ceruleus. In the cat the bilateral ablation of this tiny area produces periodic occurrence of REM accompanied by a fantastic display of rage-like motor behavior and grimacing, while in all other respects the appearance of sleep is retained.[57]

Although much remains to be done in confirming, clarifying, and extending such observations, there can be little doubt that they comprise a proud and exciting new chapter of neurophysiology. Yet our physiologist colleagues are the first to insist that the relevance of such observations to dreaming is, to say the least, problematical. This is so if only because the observations are predominantly derived from the laboratory cat, and although it would be surprising if human neurophysiology were entirely different, it would not be at all unexpected that there might be crucial differences. In the final analysis, the degree of conviction we can feel about any physiological inferences across animals depends upon the extent of descriptive similarity we perceive among the functions in question. For example, it would take a most experienced eye to distinguish among the EEG and eye movement patterns found during REM in chimpanzees macaque monkeys, and men. They are virtually identical, just as they are in sleep generally or in waking.[1, 87, 110, 111] Therefore, no great act of faith is required to infer that the central neurophysiological processes involved probably are highly comparable, but the same peripheral manifestations in the cat are clearly different in many respects. The primate EEG during REM is not the extremely fast and activated pattern seen in cats; it much more closely resembles the somewhat slowed and random pattern found at the initial transition from waking to sleep. The cat has no alpha activity in any state, but neither do primates have anything like the synchronized hippocampal theta rhythm so characteristic of REM states or intense arousal in Carnivora and other orders of mammals.

Similarly, careful quantitative examinations indicate that the eye movements of human REM periods are actually con-

siderably slower than waking fixational shifts, although comparable to them in form. They are almost identical with eye movements found during waking when we summon up visual images behind our closed eyelids.[49] By contrast, the very rapid bursts of eye movement seen during REM states in the cat appear to have no equivalent during waking [50, 51]—no more than the pronounced twitches seen in lower mammals have any semblance to behavioral motor activity. The dropping out of muscle tonus during the feline REM period is one of the most clearly demarcated features, but not so in primates. A much more subtle and less constant change is observed in man,[8] but even that has not been noted so far in other primates—perhaps because of the very unnatural conditions of restraint under which their sleep is studied. Irregularities of blood pressure level during REM periods are conspicuous in both cats and primates, but precipitous drops in average level are described in the cat [18, 59, 116] while small but quite consistent increases accompany that state in man.[65, 89, 102, 103]

Thresholds of arousal during feline REM states are said to be strikingly elevated by comparison with the remainder of sleep [55] and, although Dement has questioned the basis for that conclusion,[24] many neurophysiologists are so impressed by it that they refer to this condition simply as "deep sleep." While arousal thresholds in man * are not consistently lower than those during the rest of sleep, statistically they tend to be, so that REM clearly does not represent deep sleep in the human.[85, 101]

Thus, even though the general homology remains, differences in surface REM characteristics between cats and primates imply that there might well be important central differences as well. The overall impression one gets is that REM is a much stonger and more distinct process in cats, as in many other lower mammals, perhaps more akin to a convulsive than a behavioral manifestation.

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* If arousal thresholds were assessed in the human by direct reticular stimulation, as they generally are in lower mammals, they too might be elevated during REM, as they have been found to be in monkeys. (Pollock *et al.*[82] 1967.)

Certainly these issues could be clarified by extending all of the same kinds of observations made upon cats to laboratory primates, but that will be a laborious and expensive undertaking and thus far has only begun. There have been a number of depth electrode studies of primate sleep but only one worker reported anything comparable (yet clearly not identical) to the pontine (spiking patterns) of the cat during REM,[111] though these are also described during waking.[19,30] An attempt to trigger REM sleep in the monkey by electrical stimulation of the pontine area was not successful,[68] contrary to efforts repeatedly reported for the cat.[55] The first information concerning brain temperature or blood flow during REM states in primates now comes as the preliminary report that while cerebral blood flow may be increased, brain temperature actually decreases.[88] There are no reported studies of the effect of experimental lesions on primate REM—although the demonstration of its existence in hydroencephalic infants[80] or in certain clinically decorticate humans, and its absence in certain decerebrate humans,[56] are quite compatible with findings in cats. On the other hand, some varieties of observations such as those of blood and urine biochemical changes[75,112] or general metabolic variations[15] apparently associated with human REM periods have not been sought in any other animal. The highly important study of Evarts on temporal patterning of pyramidal neuron discharge in monkeys, already mentioned, appears to be the only relevant instance of microelectrode studies in primates but certainly deserves to be extended phylogenetically as well as anatomically.

Finally, of special psychiatric interest, it is not known whether the penile erection so frequently accompanying human REM periods[31,61] is a common mammalian characteristic or a uniquely human one. A few observations of monkeys in our own laboratory and elsewhere suggest that it is at least a primate characteristic, though perhaps only coming to full flower in man.[60,42]

Whether or not we can draw any conclusions about the REM state in humans from studies in animals, there are inferences

we can make at this point about the nature of its possible relationship to dreaming in both the human and the feline. I believe we can say with considerable confidence that dreaming is not the cause of these physiological events, nor is it necessarily their accompaniment. These judgments stem from another implicit conviction: that such a complex perceptual and cognitive process as dreaming must require higher levels of brain functioning regardless of its relationship to lower levels. Thus, I find it impossible to conceive of anything like what I think of as dreaming going on in hydroencephalic infants, decorticate persons, newborn kittens, or pontine cats. Yet, if we are to believe the available literature, all of the elements of the REM state are clearly present in all of these situations. Even aside from such an argument, which could be based upon faulty assumptions or inadequate information, the sheer universality, regularity, and lawfulness of this phenomenon smack of a basic biological process. Nevertheless, it is quite another thing to postulate that this biological process provides some of the *necessary* conditions for dreaming to occur without any means of providing the *sufficient* conditions. That proposition brings us, invariably, to such issues as (1) is dreaming the invariable accompaniment of REM; (2) does dreaming occur exclusively in concomitance with REM; (3) or, more fundamentally, what assurance is there that the two are at all related? The only possible source of answers to these questions is experimental study with human subjects, but before turning to these I would like to digress a little about the epistemological problem involved.

Occasionally, upon awakening from sleep, we fleetingly capture glimpses of visions, thoughts, and feelings which have seemingly lingered from the prior condition to sleep. We call the experience "remembering a dream," and we infer that there must be a process or state within sleep which gives rise to dreams (i.e. dreaming). It is rarely possible to be aware of dreaming while it continues, and the only evidence of it would be uncertain memory to that effect after awakening—for which there is always the equally plausible explanation of earlier

transient awakening. Thus, skeptics could argue that the reality of dreaming during sleep is an inference based entirely upon circumstantial evidence, and therefore that the phenomenal event of dreaming is every bit as hypothetical as is its physiological basis.*

None of us believes this, but the point is that private convictions are of no more scientific value than the private dream memories from which they derive. As many have pointed out before, the only relevant empirical data ever available to us are reports of dream memories, products of the waking mind, reflecting all of its complexity and fallibility. So our raw data are already twice removed from hypothetical origins: first by the wrenching transition from sleep or dreaming to waking, and secondly by the perilous translation from subjective experience to verbal reports. But, even in this form, such reports are merely collections of words; usually, in order to make any use of them, we then subject them to an additional process of judgment, analysis, or other variety of manipulation. Surely if there were any alternative approach to this matter, we would recoil from such dubious, third-hand information—but there is not. To use a laboratory analogy, we know from the outset that our instrument attenuates and distorts the signals we think are there, and the question is simply whether, or how often, we distinguish the signals at all above the variable noise level of this fickle system.

Since the relationship between REM periods of human sleep and dream recall was first claimed in 1953, it has been reexamined in at least sixteen systematic studies, surely the most thorough test yet given to any psychophysiological relationship (Aserinsky and Kleitman,[4] Dement,[20] Dement and Kleitman,[25] Wolpert and Trosman,[115] Goodenough *et al.*,[36] Jouvet *et al.*,[53] Snyder,[98] Wolpert,[114] Kremen,[67] Foulkes,[33] Orlinsky,[78] Rechtschaffen *et al.*,[84] Foulkes and Rechschaffen,[34] Goodenough *et al.*,[37]

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* Malcolm[71] goes so far as to insist that the only meaning the word *dream* has is in reference to the *strange tales* we report to one another. The usefulness of that word (or *dreaming*) in relation to something we assume is happening during sleep seems apparent to me, though I would agree that they have no direct empirical referents.

Hobson *et al.*,[45] and Kales *et al.*[58]). The incidence of "dream reports" obtained from REM awakening ranges from 60 to 89 per cent, the 74 per cent first obtained by Aserinsky and Kleitman in 1953 being almost precisely the median. It is not a bit surprising that no study obtains 100 per cent recall; nevertheless, this signifies that we could never prove by this means whether or not REM is invariably accompanied by dreaming even in adult humans. Beyond this, we must recognize that such studies involve all of the usual complications of interpersonal relationships.* What really needs to concern us in this context is the possibility of an overall inflationary effect upon statistics by the subjects' wishes to comply with the experimenters' expectations, a not unfamiliar problem in clinical situations as well. Since subjects are invariably in some sense volunteers, usually motivated by monetary incentives, and since it is an obvious expectation that they will produce dreams, it is not surprising that they often do. There are two kinds of controls for that possible influence, the first being the differential results of REM and NREM awakenings, since such expectations would be as likely to inflate one as the other. The second was used in just a single study of Kremen,[67] who reasoned that the best way to minimize a subject's assumptions about his expectations was to have him state only whether he had been dreaming just prior to awakening. In effect, Kremen short-circuited several of the uncertain steps in the usual procedure, and it is notable that his results were extremely similar to those originally obtained by Aserinsky and Kleitman.

The differential results of REM and NREM awakenings have been much more discussed in polemics over whether dreaming is exclusively associated with REM periods; just viewing the wide range of results from NREM awakenings, one can understand the basis for vast uncertainty about that point. While uncertainty is clearly justified, I think it is not as great as these varied reports imply. After awakenings in the labora-

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* As researchers here in Cincinnati have taken the lead in pointing out, whether or what subjects report of their dreams is clearly affected by subtle or not so subtle interactions between subjects and experimenters.[113]

tory, subjects are usually more or less bewildered momentarily and are more or less assured and articulate in what they finally report. Often this is no more than a few vague and mumbled thoughts, carrying little conviction as description of a dream; sometimes it is an elaborate saga that will take up many pages of typescript; usually it is something in between. Although we do not have time to consider these studies in detail, I think it is fair to say that the varying results obtained are very closely related to the criteria the experimenter used as evidence of "dream recall" and, in the most extreme instances are related to the procedure employed for eliciting it. There is complete agreement among studies that reports from NREM awakenings are usually quantitatively and qualitatively different from those of REM awakenings, with NREM reports tending to be brief fragmentary descriptions of thoughts and REM reports tending to be longer and more coherent descriptions of hallucinated dramas. If we are willing to accept the former as evidence of dreaming, then there is no specific relationship to REM, but if we insist upon the latter, then the relationship is as good as we might hope to obtain.

Such a relationship has been demonstrated best in the latest studies directed to this question by Goodenough *et al.*,[37] Hobson *et al.*,[45] and Monroe *et al.*[76] In these studies, the last step in this procedure, namely, the judgment as to whether a given report was or was not a dream report, was carried out by the investigators on a "blind" basis from transcripts. Although even such judgments are subject to varying preconceptions as to what constitutes a dream report, the agreement among them and with the original findings of Aserinsky and Kleitman is very impressive.* Still this is a statistical relationship, and we

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* Since Monroe's studies[76] come from the same laboratory that had previously challenged the REM dream correlation most severely, the conclusion of its authors is particularly significant. "These results seem to complete a full circle started with the work of Aserinsky, Kleitman and Dement. It appears that REM periods are, after all, highly diagnostic of a kind of sleep mentation which has all of the characteristics associated with the term *dreaming,* of the kind of vivid, distorted, elaborated, visual-hallucinatory mentation which has been the major interest of the clinician."

could never conclude from it that dreaming occurs exclusively during REM periods.

Indeed, a skeptic might argue that it does not prove any immediate relationship between that hypothetical subjective event during sleep called dreaming and the objective physiology of the REM state. Perhaps dreaming is random or continuous during sleep and the activated physiological condition of REM is somehow more conducive to its persistence into waking memory; or perhaps there is no psychic life during sleep, but the effects of the REM state simply enhance the capacity for confabulation after awakening. Fiss and his colleagues[32] now report that when subjects are asked to create Thematic Apperception Test (TAT) stories immediately after awakening, those emerging from interrupted REM periods do have qualities more similar to dream reports, such as more vivid imagery with greater emphasis on the visual modality, more intense affects, and more perceptual distortion and bizarre intrusive thoughts. Any faith that the dreaming reported actually arises out of sleep must rest upon other indirect experimental evidence, that which correlates the nature of the report either with incorporation of external stimuli or with more specific physiological events while REM periods still continue.

Tests of incorporation into subsequent dream recall are still very scarce in the rapidly growing literature on the psychophysiological study of dreaming, perhaps reflecting the initial experience of Dement and Wolpert[26] that this was not easily demonstratable. Still, both their study and at least one later one by Berger[9] indicate that dream reports do appear to be modifiable, with varying frequency, by experimental stimuli given during REM states.

In the second category, that of more specific psychophysiological correlations, the early finding of a relationship between duration of REM periods and subject judgments of duration of dreaming[26] is very relevant but apparently has not been reexamined. On the other hand, observations of correlations between dimensions of dream reports and one or another physiological variable during REM, including amount of muscle

twitching,[114] variability or rate of respiration,[45, 96, 98] presence or absence of penile erection,[61] blood levels of free fatty acids,[38] or amount of eye movement, would all appear to be amenable to other explanations. For example, that amount of eye movement correlates with judgments concerning dream reports is established in at least six studies, even though the actual content dimensions focused upon have ranged from physical activity through emotionality, or bizarreness, to vividness;[10, 26, 37, 45, 61, 108] but in any of these studies where multiple dimensions have been considered together, they very strongly covary in what might be thought of as a global dimension of "dream intensity." Since the same appears to be true of the various REM manifestations, there is little basis from such data to conclude anything more than that the intensity of dream recall is positively correlated with the intensity of the REM process, but that might also be explained as a carryover effect of the prior physiological condition upon capacity for waking fantasy. There is just one other systematic observation which could not be construed in such a fashion; the ability to predict the direction of eye movements from subject dream reports,[26, 90] which was claimed to be successful in from 75 to 85 per cent of instances when dreams were vivid. This is a very difficult kind of experiment and certainly deserves much additional replication. If it can be confirmed (and I have no doubt that it will be), it would seem to be the best possible evidence of the reality of dreaming while REM states occur and that the eye movements themselves precisely parallel hallucinatory imagery.

Even though the eye movements of human REM periods may directly reflect the hallucinated imagery of the dreamer, it becomes increasingly apparent that they, like every other element of REM states, are intrinsic aspects of this basic biological process. Contrary to earlier reports, they are now found even during the REM periods of the congenitally blind,[2, 41] where no association with visual imagery can be inferred. The conclusion appears inescapable that all of the physiological features of REM states we are now aware of are probably much more fundamental than dreaming, yet this is not incompatible

with the premise that higher central nervous activities, such as we assume to be involved in the physiology of perception, or thought or memory, have become integrated with this older mechanism in that complex psychic process (just as speech in its service to conceptual thought makes use of the ancient biological mechanism of respiration).

Although it is well established that the cerebral cortex is by no means necessary for the occurrence of rapid eye movements during REM periods either in cat or man, indications are beginning to emerge that it does normally influence their occurrence very markedly. After total or partial decortication involving the frontal lobes of the cat, the number of eye movement bursts is actually found to increase; but after occipital decortication, as after coagulation of the superior colliculus, these bursts are very much diminished.[51] Similarly, it is reported that patients with bilateral parietal and anterior occipital cortical lesions show almost complete absence of eye movements during REM states.[39] These are plainly very gross effects, but they do leave open the possibility of much more subtle integrations involving the entire brain. If laboratory reports of dreaming have any validity, we must assume that the auditory cortex is as much implicated as the visual or associational,[104] and the involvement of memory mechanisms—wherever they reside—is unquestionable. In that connection, perhaps one of the most promising leads concerning the integration of higher nervous functions with lower ones in the physiology of dreaming is still the pre-REM-era observations of Penfield and Rasmussen[79] that dream-like hallucinatory experiences could be triggered in certain epileptics by electrical stimulation of their damaged temporal lobes.

It seems safe to agree with Kety[63] that physiology is never likely to identify unique correlates of individual thoughts, memories, or dreams; yet I feel equally confident that we are on the threshold of learning much more about the general physical correlates of such mental events and that progress thus far made toward a physiology of dreaming is not likely to be wholly irrelevant. If I may misappropriate Dr. Lewin's concep-

tion of the "dream screen,"[70] I can conceive that in some sense the primitive biological process of the REM state periodically provides the "energy" to illuminate the screen as well as the projector mechanism to crank the film, and possibly the film itself; but that, for reasons we cannot yet comprehend,[101] all of this would go on regardless of whether the film contained the meaningful images we call dreams. For physiological answers to such questions as how the scripts of dreams are written, or the film produced, or why the entire process takes place, we can only wait hopefully and expectantly, but still very much in the dark.

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DISCUSSION

BILL J. BALDRIDGE

"Ground not upon dreams;
You know they are very contrary."*
—MIDDLETON, *The Family of Love*

THE DETAIL with which Dr. Snyder has covered this fascinating topic makes a discussion of his presentation most difficult. He has brought to our attention items of historical interest, has presented findings suggesting a phylogenetic aspect of the REM state, has reviewed an extensive biological and neurophysiological literature, and has pointed out the difficulties of obtaining consistent results between the biological aspects of dreaming and dream reports. Dr. Snyder has also raised several questions of a theoretical nature which must be taken into account by any who attempt to integrate the physiology with the psychology of dreaming.

The original observation by Aserinsky and Kleitman of the relation between REM periods and dreaming has produced a marked influence in the field of physiology, in medicine, in psychology, and in neuroanatomy and continues to do so after fifteen years.[3] Few discoveries in the science of behavior have had such far-reaching effects on research.

The physiology of dreaming is an important and fascinating subject, but I would hold that much of its fascination lies precisely in the relation between the physiology of dreaming and the psychology of the dream. Cyclic variations of physiological function during sleep have been noted and studied for many years, but with interest generally limited to those close to the studies.[18] The discovery that dreaming was related to this cyclic pattern stirred the imagination of science and launched the study of sleep into its current position of prominence. The ability to determine the time of dreaming made available large quantities of dream material which could then be studied in relation to the underlying physiological process. The intrigue

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* Poetic subtitle offered by W. D. Ross

of a search to relate psychological functions to the underlying biology was raised once again as it had been during the early studies of psychophysics when Gustav Fechner explored the newly discovered relation between physical intensities and sensation.[10]

Though many interesting observations have been made, Dr. Snyder has pointed out that the relation between the psychology and the physiology of dreaming remains to some degree uncertain. He has indicated that the very nature of dreaming accounts for a large part of this uncertainty. Although I am sympathetic to the difficulties arising in dream research, I would nonetheless suggest that these are not limited to the psychological side of dreaming. Furthermore, focusing on the difficulties inherent in the subjective dream have served to impair progress in developing needed physiological techniques for dream research. Let us consider an example or two.

The electroencephalographic criterion of sleep stages has served an important function in dream research.[12] Some voices have been raised with the plea that a more precise analysis of the EEG be undertaken, but its acceptance has generally been unquestioned. Perhaps this has been based on the conviction that the EEG criterion had greater precision than did the dream report. Information presented informally at the 1967 meeting of the Association for the Psychophysiological Study of Sleep* has made us acutely aware of the need for continuing development of physiological techniques for distinguishing phases of sleep.[11, 20] Some steps have been taken in the appropriate direction to replace our notations of "spindles and spikes" with a more reliable form of analysis.[1, 9, 16, 17]

When an awake subject makes a detailed visual examination of an object such as a human face, at a distance of five feet, the eye movements recorded by means of the retinal potential are quite small and difficult to distinguish. When the object is at a greater distance, or is smaller, the recorded eye move-

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* The immediate outcome of these discussions was a recommendation by the membership of APSS that a committee be formed to explore methods for improving the reliability of EEG scoring.

ments are likely to be indistinguishable from the background EEG. For the gross detection of dreaming, eye movements recorded in this manner may be sufficient, but when they are called on to perform a more sensitive discrimination such as the beginning and ending of a dream period, false conclusions may be generated. A more sensitive method of recording eye movements has been reported by our own group, making possible a more precise correlation between dream reports and REM states.[6] One direct result of this technique has been reported in a study by Gross *et al.* in which this method was used to demonstrate more precisely the concurrence of REM periods with dreaming in the congenitally blind.[14] Work which is now in progress makes it reasonable to expect that, with this method and improved techniques, eye movements may be recorded throughout all dream periods.

Few, if any, reports of autonomic fluctuations during REM sleep have attempted to account for other than gross movement artifacts in their results.[22] However, a variety of fine muscle activity has been reported during REM sleep in addition to the gross movements which generally persist for only a few seconds.[4, 8, 25] Variability in heart rate and in breathing has been shown in a number of studies to be a function of the movement level.[2, 21] A standard textbook of physiology will indicate that heart rate is under the reflex influence of nearly every organ and system in the body, yet compensation has not generally been made for these effects. Our own observations have shown that swallowing may produce an increase of 25 to 50 per cent in the heart rate, the increase persisting for from ten to twelve seconds. We have also reported that swallowing movements occur throughout the REM period.[8]

The observations that some form of mental activity may be reported from nearly every stage of sleep need not mean the end of all order in the system. Two studies have reported that dream production may indeed proceed on a continuous basis and that a developmental stage may precede the occurrence of the more customary dream production.[7, 13] When sub-

jects were awakened on a randomized time schedule, thus also minimizing the bias of subject expectation, the usual relations between dream reporting and the REM period were observed.[7] The probability of obtaining a dream report reached about 70 per cent if the awakening was made after as little as three to seven minutes of REM sleep. This probability dropped sharply when the awakening followed the termination of a REM period, reaching a minimum after seven to fifteen minutes of NREM sleep. As the length of the NREM period increased, however, the likelihood of obtaining a dream report rose to the same high level obtained from REM awakenings. Hernandez-Peon has recently suggested a neurophysiological model of dreaming in which he proposed a progressive decrease of inhibitory control over brain centers involved in recent and remote memory and over emotional and motivational centers.[15] This model would seem well suited to accommodate observations of dream development as well as to account for differences in the qualititive aspect of dream reports obtained from different phases of sleep.[13]

Let us turn once again to Fechner and psychophysics. Fechner made significant contributions in a number of scientific fields, but it was Fechner's boldness in dealing with subjective sensations in relation to physical stimulation which made him great. Scientific psychology has profited from that boldness for one hundred years. Let us also express boldness in the study of the physiology of dreaming. Dr. Snyder has stated that dreams are, at best, twice removed from their supposed physiological source, but this is not different from other scientific data. Few phenomena of nature are understandable by direct observation of the process. Let us have the courage to retain the concept of the dreams which we infer, just as we infer that the electrical potentials which we measure from the scalp comprise a summation of the individual neural activity. Let us proceed to test this concept until it yields the knowledge we seek or until we are able to demonstrate its falsity by the same stringent requirements which we demand for its proof.

I see no incompatibility between the study of the physiological process of dreaming and the psychological process of dreams. Widely different methods and a host of experimental procedures should be used in answering the questions which may be raised. Correlational studies of the physiological with the psychological should be encouraged. More studies designed to manipulate dream content need to be undertaken to strengthen our inferences about the time of dreaming and the process by which dreams are formed.[5, 23, 24] Greater interest should be shown in individual differences and greater emphasis placed on individual variability.

If I may also borrow the analogy used by Dr. Snyder, I would add one thought.[19] I would propose that if we watch the dream film closely enough, we may learn something more about the physiology of dreaming.

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Chapter 2

A Freudian View

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"As one, who from a dream awakened, straight,
All he hath seen forgets, yet still retains
Impressions of the feeling in his dream;" *

—DANTE, *Paradise*

I have been assigned to discuss the challenges presented by recent research in the psychophysiology of sleep and dreaming to the Freudian point of view about dreaming. I expect that the reason I was chosen is that I have published a paper which dealt specifically with this topic.[23] Trosman,[35] the able discussant of the present contribution, dealt with the critical issues in 1963 while my earlier paper was in process, but since then there have been some recent research developments which have additional implications for Freudian psychoanalytic theory; my thinking has also developed somewhat further. I hold no special brief for the Freudian point of view as the final answer and do indeed think much of it requires modification. However, Freud's theories about dreaming are the most comprehensive and coherent, and others have generally been departures from Freudian psychoanalytic theory. It seems appropriate, therefore, to return to Freud's formulations of dreaming and review these in the light of recent research.

Another cogent reason for reviewing Freud on the subject of dreaming is that, in his "A Project for a Scientific Psychology," [19] he anticipated in a general way some of the recent neurophysiological findings. It may be that we can still get leads for future investigation from a review of his original concepts.

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* Poetic subtitle offered by W. D. Ross

Snyder [34] has already ably reviewed the physiology of dreaming sleep, and I will assume that the reader is familiar with the principal psychophysiological findings to date. I will use the terminology of Hartmann [22] in alluding to the two phases of sleep: the term *D-state* referring to the stage of sleep characterized by stage-I EEG activity, rapid eye movements, muscle paralysis, and a generally activated state of the central nervous system during which dreaming is assumed to occur; the term *S-state* being used for the other phase of sleep generally referred to as the slow-wave phase of sleep.

A problem that particularly plagues our field is a tendency to extrapolate from one level of discourse to another. A flagrant example of this would be a confusion of id or ego with specific anatomical regions or neurophysiological functions; although hardly anyone at present would be naive enough to do this, there is frequent confusion in the literature about what is referred to as a dream. It is important to point out that the D-state or REM phase refers to a particular stage of sleep which is definable in behavioral and neurophysiological terms. The dream is a subjective or psychological phenomenon which must be dealt with in psychological terms. As far as we know, a dream is a uniquely human phenomenon. (This is not to say that other animals do not dream. We simply have no way at present of measuring this.) * What we actually know of our dreams is an imperfectly remembered version of the subjective experience which occurs during sleep.

Freud's Concept of Dreaming

The following is a brief recapitulation of the process of dream formation as conceived by Freud: During sleep, there are residues in the preconscious of the previous day's thoughts and indifferent impressions. Infantile impulses from the unconscious can become attached to those residues and, since the process of sleep lowers repression, latent dream thoughts

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* One study, in which monkeys have had galvanic skin response (GSR) conditioning to visual input and have had GSR during D-state, suggests dreaming.

are formed. (Freud seems to differ at various places in his writing as to whether he thought that preconscious activity continued during sleep. In general, one has the impression that he felt that latent thought was largely formed during the day.) Through the process which Freud termed *dream work*, the manifest dream (dream proper or dream text) is fashioned from the latent dream thoughts. Dream work consists of such processes as condensation, displacement, and symbolization. Because of the dream work, and at the behest of the censor, the original thoughts are distorted and disguised. The isolation of external stimuli and the inhibition of the possibility of motor activity permit these thoughts to follow a regressive path back to the system perception. They are changed into concrete images and perceived, for the moment, as convincingly real experiences.

There were two functions of the dream according to Freud: (1) to periodically discharge the unconscious and (2) to guard sleep.

Let us consider first the dream as the guardian of sleep. According to Freud's concept, without the agency of the dream the unconscious drives permitted by the lowering of regression would have led to waking and action. He assumed that the instinctual drives came to the fore when there was beginning to be arousal, that is during light sleep. It is evident from his writings that he thought this occurred, under ordinary circumstances, close to the time of awakening. He did discuss the fact that some dreams occur in the middle of the night and, according to his concept, in very deep sleep. His explanation of this was in terms of psychic economics. If the motive power of the unconscious wish was unusually great, the dream would occur in deep sleep.

Through the process of regression and through dream work, latent dream thoughts moved in a direction opposite to that in waking thought and activated the system perception from within, allowing the hallucinatory experience of the dream to occur instead of action and thus preserving sleep.

As a result of recent psychophysiological sleep studies, we

have information unavailable to Freud indicating that the D-state (and presumably also dreaming) is a repetitive, virtually automatic phenomenon which, except under unusual circumstances, occupies the same amount of time each night. In the sense that Freud conceived it, the dream is not the guardian of sleep. Rather there is a built-in mechanism to insure that D-state sleep and hence dreaming can occur regularly throughout the night. We might put things the other way around and say that sleep insures dreaming.

However, I do not imply that Freud's "guardian of sleep" concept is entirely in error. We know that there are specific built-in mechanisms operating during the D-state which insure, under ordinary circumstances, that the sleeper does not awaken.

If it were not for the elevation of thresholds for external stimuli, as well as motor paralysis,[25, 32] there could not be the extraordinary arousal of the neocortex which occurs without waking. Even so, there are often very brief episodes of waking in association with the D-state. It is true that at times material breaks through into dream consciousness, which leads to awakening, presumably because of the increase in anxiety and a heightening of arousal which can no longer be contained by the sleep-guardian mechanisms. A problem which must be dealt with at the psychological level is what determines whether content is sufficiently arousing to cause waking from a dream or from the D-state. The capacity of the ego to handle the instinctual drives and unconscious conflicts being dealt with during a dream presumably determines whether wakefulness ensues. Assuming the ego is successful in disguising and working out the issues involved, we may still view the psychological aspect of the dream as contributing to the maintenance of sleep.

The other function of dreaming according to Freud was to discharge the unconscious, to bring it back under the control of the preconscious. It did this, Freud thought, with a small expenditure of waking effort which allowed the sleep of the preconscious to be preserved. It now seems that the issue is

not so much that of preserving the sleep of the preconscious but insuring that certain activities are carried out. Discharge of the unconscious may be one of those activities.

Freud referred several times in *The Interpretation of Dreams* to the excretion theory of Robert, propounded in 1886. Robert emphasized the appearance in dreams of relatively indifferent material from the previous day. He described the dream as "a somatic process of excretion of which we become aware in our mental reaction to it." He said, "A man deprived of the capacity for dreaming would in course of time become mentally deranged, because a great mass of uncompleted, unworked-out thoughts and superficial impressions would accumulate in his brain and would be bound by their bulk to smother the thoughts which should be assimilated into his memory as completed wholes."

Freud seemed ambivalent about this theory. In one section, he essentially accepts it; in another, he goes to some length to disagree. I find it difficult to ascertain precisely the point of Freud's disagreement, but it seems largely to hinge on Robert's use of the term *somatic* to explain the basic aspect of the process and on Freud's wish to emphasize the dream as an important and meaningful part of *psychic* life.

In the light of the discovery of the D-state as a neurophysiologically separate stage of sleep occurring throughout the mammalian kingdom, Robert seems to have come closer to the truth than Freud. The D-state has intrinsic somatic mechanisms which insure its presence even in decerebrate human beings. However, Freud is also correct in emphasizing the importance of the psychic meaning of the dream. It would seem that, with the evolution of the ability to have a psychic life, the dream as a psychic entity occurs and has usefulness. We are again in dangerous semantic waters and close to confusing levels of discourse. Perhaps we should say that the somatic neurophysiological process of the D-state permits the psychic activity of the dream. I shall have more to say about this point subsequently in emphasizing the function of the dream viewed in the light of information-processing or the

central nervous system considered from a cybernetic point of view.

In later editions of *The Interpretation of Dreams*, Freud spoke about the concept of Maeder [30] that dreams contain attempts at solving conflicts. According to this hypothesis, dreams provide practice for waking actions and in this regard are similar to the play of children which is preparation for later serious activity. Freud disagreed with this, emphasizing that he thought of the planning-ahead function as part of the waking activity of the preconscious and unconscious. The already-formed ideas got linked to unconscious wishes to form the dream only subsequently during sleep. In recent years, investigators such as Witkin,[37] Erikson,[10] French,[15,16] and Jones [26] have demonstrated the ongoing and changing problem-solving occurring during the course of a dream. Since some of these workers will be discussing their views later, I will not develop this area except to indicate my agreement that evidence indicates active ongoing problem-solving of a special sort occurring during dreaming.

Shortly after the discovery of the D-state, Dement [5] undertook the logical experiment of selectively depriving subjects of D-state sleep in an attempt to see if the need for dreaming could be established and whether or not its function could be established by measuring what ensued in its absence. The neurophysiological need for this stage of sleep as indicated by increased pressure for it and a subsequent postdeprivation compensatory increase was established by this and subsequent studies both in the human being and other mammals. With regard to psychological and behavioral changes, the results have been equivocal. Dement's original study [5] suggested that there was indeed an increase in tension and irritability. Subsequent studies have failed to confirm this except that three subjects, deprived as much as fourteen days, showed differing but major psychological changes of a prepsychotic nature.[6]

Cartwright *et al.*,[4] in a most thoughtful deprivation study, emphasized and clarified the fact that there are differing responses both neurophysiologically and psychologically to D-state depri-

vation. They characterized three types of responses which they called respectively *disruption*, *substitution*, and *compensation*. Time does not permit discussion of the details of this valuable study which indicates the great importance of the psychological aspects of dreaming and which emphasizes the close interrelation of psychological and neurophysiological functioning. We should not have had to wait so long to point out the obvious need for attention to individual differences in studying the psychic functions of human dreaming.

It is Cartwright's [3,4] hypothesis that "dreaming mentation is continuous but can only occupy awareness under certain conditions, i.e. a heightened level of arousal and a reduction of the usual sensory input." This raises major theoretical issues which obviously we are not in a position to answer at this time. It leads again into the semantic issue of how much of the complex psychic processes involved we are going to consider as part of the dream proper.

The fact of the realistic subjective experience, the occasional evidence of subjective affect and autonomic arousal during the time when the dream is presumably occurring, suggests a uniqueness to the state. Moreover, as French [16] and Erikson [10] in particular have pointed out, the evidence that changes in attitude and mode of ego operation occur during the course of a dream suggests a dream to be more than the fortuitous awareness of the stream of mental activity.

I propose the possibility that we must revise the idea of there being during dreaming a reduction of the usual sensory input by emphasizing that the reduction is in sensory input from outside the organism. It is likely that there is increased internal sensory input. There are signals, generated from within the central nervous system and probably ultimately originating from the reticular pontine formation, which reach the various portions of the sensory cortex as if originating from outside of the organism.[1,2] We know that one responds to a relatively undifferentiated stimulus such as the Rorschach inkblot by forming a meaningful percept related to the psychological needs of

the individual at that time. I believe it is likely that this is what happens during the D-state.

According to this formulation, there are ongoing unconscious mentations all the time (whether this would be active during delta-wave sleep is a moot point). During the D-state, there are both heightened arousal and input of internally generated, nonpatterned signals interpreted sensorially by the individual depending on his psychic state and needs of the moment and perceived by the individual in that peculiar state of consciousness we call dreaming. The attribute of quality in Freud's sense given by the dreaming process to the mentation would permit a type of problem-solving or conflict resolution particularly in relation to affective life.

I believe that the evidence of these internally generated signals [1] according to the above formulation represents the neurophysiological basis of Freud's concept of regression during dreaming. According to this hypothesis, the thoughts operate in a reverse fashion to activate the system perception from within rather than from without.

Freud's initial statement about dreaming—namely, that during this state we are paralyzed—has had ample neurophysical confirmation.[32] I have discussed this at more length previously.[23] This point has not had as much attention from psychoanalysis as it deserves. It may prove to be a critical element in understanding and working out the place of dreaming in discharging drives.

I have discussed the wish-fulfillment problem elsewhere [23, 24] as well. Briefly, it seems to me that since behavior is motivated and wishes represent a desire to reduce the tension of motivation, any sample of mentation is ultimately bound to reveal aspects of motivation. Dreams do seem to be especially revealing in this regard however.

It seems appropriate at this point to present certain issues and questions which are of crucial importance in further consideration of dream theory. I do not intend to imply that these are all the crucial issues, but they do have relevance for psychoanalytic theory.

The first point I wish to raise concerns itself with the role of the censor or repression in both the distortion of the material being dealt with in a dream and the rapid forgetting of dreams.

In "A Project for a Scientific Psychology," Freud [19] emphasized that dreams appear nonsensical, meaningless, or strangely crazy. He explained this at the time by assuming that this was related to the lack of ego cathexis; this lack permits the "compulsion to associate" to prevail. In Freud's *The Interpretation of Dreams* [17] and in his later works, he emphasized the need to disguise unacceptable instinctual impulses. The bizarre character of the dream is ascribed to the dream work transforming the latent dream thought into the manifest content. Freud postulated two types of thinking: a secondary one giving logic and direction to a primary one. It is the secondary one that we are familiar with as conscious adults.

In the dream, are we simply tapping in directly to the primary process? If so, how do we explain the elaborate process of disguise which has been postulated? In the examples of the Silberer phenomenon quoted by Freud, we find evidence of a different concrete symbolic type of representation which might appear as a disguise if we had no notion of the underlying abstract thoughts; but the examples given are not of the sort to require disguise.

Vogel *et al.*[36] have carefully studied the content of sleep-onset mentation and have found that they are able to distinguish different types of productions at different EEG levels of sleep onset. They were able to score these reports for the maintenance of secondary-process mentation and the maintenance of contact with the external world. They could distinguish a sequence of three ego states based on these two ego functions. While there was a correspondence of these with the EEG level, there was by no means a one-to-one-correlation of the psychological with the underlying neurophysiological state.

During the D-state, we now know that the cortex is in a state of arousal or activity quantitatively as great or greater than during wakefulness. However, Evarts [11,12] has shown that

the patterning of firing of the individual neurons is quite different from that of waking. Is there any relationship in this instance between the neurophysiological type of activity and the psychological? Is the peculiar type of mentation in the dream determined in whole or in part by the type of cortical activity? All of this bears on the important issue of how much we can ascribe the unusual (in waking terms) character of dreaming to the censor.

The matter of the rapid forgetting of dreams was one to which Freud also directed his attention in "A Project for a Scientific Psychology." He explained the poor memory by emphasizing that dreams follow old facilitations and thus make no change; also, because of the motor paralysis, they leave no traces of discharge behind them. Freud very shortly thereafter (in *The Interpretation of Dreams*), after having said that the forgetting of dreams was easily explained, stated that the forgetting of dreams was inexplicable unless one took into account the resistance or censor.

In recent years the technique of waking a subject during different phases of sleep has been utilized, and we have learned that there is a remarkable difference in recall—depending on whether or not the waking is from the D-state. Within a few minutes after the cessation of a D-state period of sleep, the amount of recall of dreaming has dropped abruptly. Can this be wholly the result of the resistance or censor? Can it be related to the peculiar state of the central nervous system during the D-state? The matter of the connection of motor activity with learning, memory, and integration needs additional exploration. However, when in the course of our own analysis, self-analysis, or our work with a patient, a well-remembered dream slips away even after having been told, the notion of the resistance becomes a very convincing one.

We must not forget, however, how much easier it is to remember logical sentences than nonsense syllables—and to our waking conscious mind the dream is close to nonsense syllables. It also is appropriate to mention the loss of memory which occurs in children at the time of learning to think in word symbols

rather than visual images. The memories of young children of from two to five years of age are remarkably long, but they are visual or pictorial and without regard for the logic of space or time for the most part. Well-remembered scenes generally vanish with the acquisition of reading. Can it not be that the dream which is after all largely a pictorial or sensory experience is lost because we generally think in word terms and have lost most of our capacity for pictorial memory? The whole question of forgetting of dreams requires much deeper investigation.

The discovery of two neurophysiologically distinct phases of sleep points up the need for a better understanding of the functional relationship of sleep to the rest of life; but now we are faced with the problem of understanding not one but two phases of sleep. Psychoanalytic theory, if it is to continue to be used, must also be able to encompass the dual sleep states.

In my opinion, we have too easily accepted the simple intuitive notion that every so often rest is required and sleep permits this; however, we have not examined closely enough what sleep accomplishes.

Time does not permit an extended discussion of this. Briefly, we must consider what sleep accomplishes not only for the total organism but more importantly for the central nervous system. Indeed, evidence to date suggests that sleep developed phylogenetically only with the transition from amphibians to reptiles when there began to be enormous elaboration of the brain. It is also believed that the two phases of sleep are seen only in fully developed form in the mammal, though there is a very brief spell of sleep in some birds which resembles the D-state.[29]

It seems to me that we might hypothesize at least two needs which sleep could subserve. One could be thought of as rest and restoration of the "machinery." This would be a biochemical and physiological operation which would permit of restoration of certain enzyme levels, removal of end products, and so forth; it would be close to the notion of the restorative function of rest for the remainder of the organism.

The second and, for the brain, more crucial function is best conceptualized using the model of a computer. This notion has been discussed previously in various forms.[23, 21, 20, 8] Jouvet [28] and Meissner [31] have suggested a role for the D-state in memory consolidation. In his *A Note upon the "Mystic Writing-Pad,"* Freud [18] pointed out the need for a system which received information but which could very rapidly erase it and be prepared for receiving new information, and another system which could store the information received by the first system.

The part of the mental apparatus which is responsible for receiving and processing the information during any given day and which holds the recent impressions in a readily usable fashion has a finite limit, and we know it can become overloaded with information input. It is logical to assume that one of the functions of sleep is to permit this part of the mental apparatus to divest itself of the day's material. To do this, it is necessary for there to be a process of sorting and storing the information. Moreover, the day's impressions must be related to previous information, and goals or drives must be rearranged in terms of new information.

It is tempting to postulate that the S-state accomplishes the traditional resting and restoration of the machinery of the mental apparatus and the D-state the active information transfer, sorting, and storing. Our knowledge obviously is too limited at present to do more than speculate about this.

How would this scheme fit into psychoanalytic theory? During waking, the ego would deal with the stimuli and problems presented and would relate them to the set of the psychodynamic system at that point in time. During the S-state, there would be a period of time of rest for the ego. During the D-state, utilizing the mechanism of the dream, the ego would relate the new issues of the day to previous drives and memory traces. There would be an opportunity for the ego to rearrange the mental apparatus and develop a new psychoeconomic state. There would be an opportunity through the mechanism of the dream to play out or try out new relations of drives without actual action. This would account for the finding that on occa-

sion the whole basic mood or set of an individual may be found to have changed during the course of a night's sleep.

Previously [23] I have also discussed the notion that activation of the D-state follows the differentiation of the S-state as a means of insuring that from time to time there is a reintegration of function. From sensory-deprivation studies, we know that prolonged periods without patterned sensory input lead to chaotic operation. The D-state may be a way of providing periodic internal sensory input to keep the central nervous system ready for function. This concept is similar to that put forth by Ephron and Carrington [9] in which they view this process as a homeostatic function. It is also in keeping with the postulate of Roffwarg *et al.*[33] that the reason for the great amount of activated sleep in the fetus is to prepare the brain for later function.

If there were no necessity for periodic reactivation, the other functions postulated for the two stages of sleep could be satisfied by one period of each. A cornerstone of the Freudian dream theory is that the dream discharges the unconscious, but what exactly does this mean? Is there any recent evidence which can be brought to bear on this hypothesis?

Presumably what Freud meant was that the dream permitted some discharge of instinctual drive. How are we to understand this? Can there be real gratification of drives through the hallucinatory experience of the dreams? What about hunger? There certainly can be no more than a very temporary gratification. There are repetitive accounts of dreams of food under conditions of starvation; however, there are contrary reports of no increase in food references.

The discovery by Fisher *et al.*[14] of penile erection in conjunction with most D-state periods seemed, on first view, to be strong confirmation of the hypothesis of discharge of unconscious drives, particularly sexual ones. However, as Fisher [14] has ably pointed out and discussed at some length, the present evidence seems to suggest that the erection is simply part of a generalized physiological arousal. Evidence for this among other things is the finding of erections in sleeping newborns, in

elderly men who have lost sexual potency, and the fact that tumescence ordinarily precedes the actual onset of the D-state period and hence presumably the hallucinatory dream.

Even if it could be established that the erection is directly related to drive, the issue of discharge would not be settled. The only evidence of actual physiological drive discharge would be the nocturnal emission.

These considerations lead to the complex problem of the place of fantasy in psychic economics and to the question of whether or not fantasy can actually accomplish drive discharge. In addition to the question of the role of the dream in such discharge is the question of what is accomplished by attending the theater, reading a novel, or viewing paintings on a visit to the art gallery.

If the dream does indeed lead to some drive discharge or gratification, what determines the extent of it? Obviously if there were not some controlling mechanism there could be sufficient discharge during the dream so that the motive force for waking action would no longer be available.

Perhaps what is accomplished by the dream is not so much actual drive discharge but a rearrangement of drive energy. A hypothetical example may clarify this concept. A hostile aggressive striving which might have been stimulated by a frustrating experience of the previous day but not gratified could be rechanneled through the mechanism of the dream into more practical modes of future discharge. Through the hallucinatory experience, or experiential model of the dream, other routes for displacement or sublimation of the aggressive impulse could be tried out and, if a potentially satisfactory route evolved, this could be pursued in waking life.

Let us return to Freud's concept that the dream permits the preconscious to bring the unconscious under its control. With the lowering of repression, unacceptable (in the waking state) drives can be recognized by the preconscious and worked through into acceptable forms for discharge. According to this concept the drive would not actually be discharged but the problem of how to acceptably discharge it could be worked out.

It seems more useful to put this in structural terms. During the protective D-state situation, the ego and superego can permit recognition of id impulses. The ego can then try out various modes of achieving discharge or gratification and, if the problem is appropriately solved, the actual gratification can be carried out in waking life. The dream would permit the bringing of the id under better control by the ego and would allow the actual discharge of drive in the future.

Such a formulation is close to the notion of the dream serving a function of information-processing and also is congruent with the concept of the dream as providing a type of problem-solving.

How are we then to understand the enormous activation that occurs during the D-state? The limbic system concerned with those elements of orality, aggression, and sexuality which comprise the bedrock of primitive urges and drives is highly activated during this state. If one sees the movies of the behavior during the D-state of Jouvet's cats who have had the nucleus locus ceruleus extirpated so that there is no longer motor paralysis, one is impressed with the enormous amount of ongoing drive discharge. The key may be in the fact that under ordinary circumstances the motor paralysis does indeed prevent actual drive discharge and allows only for the working out of impulses at the neural level.

Obviously we are far from the answers to these questions. It seems likely, however, that additional investigation of the D-state and the dream may shed light on the important issue of the relation of fantasy to activity and to drive discharge.

The burgeoning research in recent years in the psychophysiology of sleep does indeed pose challenges for classic psychoanalytic dream theory. The bulk of investigation to date has dealt with underlying physiologic and psychophysiologic sleep mechanisms rather than focusing on the complex psychological issues of the dream. In the beginning, this was understandable and appropriate. It is necessary now to get on with investigation directed at some of the more complex issues of the dream.

The new studies have not led as yet to any necessity for major revisions of psychoanalytic theory, but they do call for changes of emphasis. There is promise, however, that we can soon further develop the psychological understanding of the meaning and process of dreaming. Even more importantly, the dream may prove to be "the royal road to the unconscious" in a fashion well beyond that originally implied by Freud. The understanding of thinking, memory, the relationship of fantasy to action, the understanding of what is really the basis for the use by analogy of the term *pyschic energy*—these and other important matters give promise of being clarified through more intensive research in sleep and dreaming.

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DISCUSSION *

HARRY TROSMAN

"If it be true that good wine needs no bush,
'Tis true that a good play needs no prologue." *
—SHAKESPEARE

To relate the Freudian view of dream psychology to current dream research in a few pages is no easy task. Dr. Hawkins has highlighted the prominent constructs and has thoughtfully examined them in the light of the experimental work. In my discussion, I propose to deal with a more restricted area, namely, the relation between unconscious derivatives and preconscious contents in REM mentation.

Freud valued the dream as an avenue to the unconscious and, with this in view, would have been interested in the similarities and differences between REM mental content and dreams in the more conventional sense as they are recalled either in the clinical situation or in normal life. He was quite prepared to accept the fact that not all mental contents which occur during sleep can be classified as being of a similar order. He stated, "There are dreams which are to be distinguished from the usual type by certain special qualities which are, properly speaking, *nothing but* night-fantasies, not having undergone additions or alterations of any kind and being in all other ways similar to the familiar daydreams." Having made this distinction, he goes on to add, however, "It would be awkward no doubt to exclude these structures from the domain of dreams." [1]

An examination of a large number of REM dreams is apt to be disappointing; they are undramatic, limited in the extent of revelation of unconscious, repressed impulse, clarity of psychodynamics or intrapsychic conflict. Indeed, as Fred Snyder reported at the APSS meeting last spring: "about 90 percent of REM dreams are judged to be about as credible as descriptions of waking reality, equally undramatic and lacking in

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* Poetic subtitle offered by W. D. Ross

bizarreness. . . . REM dream reports are generally clear, coherent, believable accounts of realistic situations in which the dreamer and other persons are involved in quite mundane activities and preoccupations. . . . Reports were considered almost entirely representational and realistic in visual form, generally involving a familiar or commonplace setting, almost always including the self, usually in interaction with other persons. The most typical interaction described is verbal in nature . . . REM dreams seem to be almost as much auditory as visual experiences."

Snyder contrasts these prosaic findings with the spontaneously recalled dream which appears to offer greater promise for the uncovering of affectively unique experiences in human life. Other investigators, not merely dissuaded by investigative ennui, have also commented on the lack of zip to REM content.

Another factor which raises the question of the extent of unconscious derivatives in REM content is the difficulty in obtaining meaningful associations to the elements of the manifest dream. Other factors are doubtless involved here too. The absence of a therapeutic relationship between the experimental subject and the experimenter is likely to inhibit the production of meaningful associations. However, the fact remains that the manifest content is largely "mundane" if not banal, and associational material is apt to be no more meaningful than responses to a word-association test.

In spite of the description of the totality of REM content which differentiates it phenomenologically from the ordinary dreams, the spontaneously recalled dream doubtless occurs during a REM period, possibly during the last REM period of the night. Thus, it is possible that there is an increasing linkage between unconscious derivatives and day-residue material as the night progresses. The presence of more obvious day-residue material in the earlier dreams of the REM periods and the presence of childhood material during the latter dreams of the night suggest such a developing sequence.[3] However, we know that the temporal dimension could not be the only way

to account for the transfer across the repression barrier. Nightmares and spontaneously recalled dreams which produce awakening frequently occur during the middle of the night as well.

Freud made a distinction between dreams from above and dreams from below; this is appropriate to the distinction suggested for the REM contents. "Dreams *from below* are those which are provoked by the strength of an unconscious repressed wish which has found a means of being represented in some of the day residues. They may be regarded as inroads of the repressed into waking life. Dreams *from above* correspond to thoughts or intentions of the day before which have contrived during the night to obtain reinforcement from repressed material that is debarred from the ego."[4] The usual REM contents resemble dreams from above.

Due to the experimental procedure, dreams in the laboratory are evoked by the interest and the attention of the experimenter rather than spontaneously recalled. It is only as a result of the diligence of the experimenter and his ability to monitor successfully the presence of the dream that such material is recalled at all. The experimenter's interest evokes the slumbering attention cathexis of the subject to the extent that the subject cooperates by focusing on his mental contents and revealing them. In the large majority of cases, the mental contents lack sufficient motive force to attain representation in consciousness on their own. Such motive force Freud attributed to the participation of an unconscious wish which pushed toward discharge. Thus the lack of perceptual intensity to most REM contents again suggests a limited attachment on the part of unconscious components to modified day-residue material.

If REM mentation differs topographically from ordinary dreams and is neither wish-fulfilling nor the application of primary-process thinking to latent dream thoughts, the question of the REM dream as a guardian of sleep becomes less an issue. Experimental work has indicated that the cycling nature of stage-I sleep antedates the potentiality for experiencing life in psychological terms. Insofar as a uniform cycling is the con-

dition for appearance of mental content, one cannot speak of REM mental content as performing a guardian function. However, the spontaneously recalled dream may be another matter. It is responsive to psychic factors, enables a dreamer to represent the gratification of an unconscious wish, and thus, like a safety valve, serves adaptively to drain tension and preserve sleep. A guardian function need only be invoked to explain dreams which secure their expression at the behest of unconscious forces.

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II

Introductory Remarks

FREDERIC T. KAPP

A definition of the term *dream* is not easy to make. I am reminded of the time when Fats Waller was asked to define *jazz*. He looked up from the piano at the earnest seeker after truth and exclaimed, "Man! If you don't know what it is, don't mess with it."

Sigmund Freud's investigation of dreams and the dreaming process was the breakthrough that provided the spark for the ideas we will deal with in the present volume. Part II will examine five points of view, all of them serious attempts to understand the dream and the process of dreaming.

Freud's approach to dreams and dreaming was a clinical and naturalistic study. He recognized that dreaming is an important form of human behavior which, like any other behavior, has motivations and mechanisms and serves an adaptive function. In a letter to Wilhelm Fliess on March 3, 1895, he recounted a dream that a nephew of a colleague had. "Rudi Kaufmann, Breuer's very intelligent nephew, and a doctor too, is a late riser. He has himself awakened by his landlady every morning, but he is very reluctant to get out of bed. One morning, as he did not answer, she knocked a second time and called him by name, 'Herr Rudi!' He thereupon dreamed of a chart on a hospital bed with the name 'Rudolph Kaufmann' on it, and said to himself: 'Well, Rudolph Kaufmann is already at the hospital, so there's no need for me to go,' and he kept on sleeping." Freud, who had had a similar dream himself under similar circumstances, realized that both Rudi's dream and his own were dreams of convenience.

Since 1885, Freud had been studying his own dreams and those of his patients, using his newly devised technique of free association and the revolutionary concepts of *neuroses* and *mental functioning* which he was simultaneously working out. He gathered data and devised tentative hypotheses which he continued revising and refining in an attempt to explain dreams and the mechanism of dreaming. Eventually, his hypothesis boiled down to the concept that the dream is a very personal fantasied fulfillment of a frustrated wish.

This explanation of the dream is clear-cut in those dreams in which the wish is wholly acceptable to the dreamer and in which the frustation comes from without. But, as Freud demonstrated, such dreams are rare except in small children and in adults under severe stress from the environment. Much more commonly, the wish gratifies one part of the dreamer's personality but is unacceptable to another part of the same personality: it is the latter which acts as the opposing frustration. In other words, the usual dreamer's conflict, which is being worked out in the dream, is an intrapsychic one. It is an unsolved problem of the day before the dream, which has revived a similar unresolved repressed conflict from the dreamer's childhood. The dream work is able to resolve the conflict in fantasy by keeping its infantile nature out of awareness. This accounts for much of the apparent senselessness and strangeness of the manifest dream content.

To Freud, dream psychology was the key to the human mind, to the drives, the conflicts and the mechanisms of human psychology. His pioneer work with dreams represents a creative process, an important breakthrough in the study of human behavior.

Arthur Koestler characterizes creativity as the result of combining sets of phenomena that were never before associated in a meaningful way. This combination brings together previously unrelated ideas and permits the detection of analogies where they were not noted before. Out of this confrontation and synthesis of unlike matrices comes the creative act. The creative genius has the ability to arrange ideas and data so that

they become more meaningful than they were before. Furthermore, he formulates his new concept in such a way that other investigators are stimulated to explore new vistas, formulate new hypotheses, and develop new techniques of research. The contributions presented herein represent important explorations of the nature of the dream and the dream process which were stimulated by Freud's basic investigations.

Chapter 3

A Focal Conflict View

THOMAS FRENCH and ROY M. WHITMAN

PSYCHOANALYTIC interpretation is almost unique among sciences in the predominant use it makes of *introspection and empathy* as methods of investigation. On the other hand, physiological experimentation on sleep and dreams, like experimentation in other sciences, is based on *objective observation* of the body and its functioning.

A most important tenet of dream interpretation, however, is one that is very difficult to check by direct observation. This is the wish-fulfilling function of the dream. This function of the dream is only occasionally manifest and in most cases must be deduced from empathic understanding of the latent content of the dream. Physiological studies, since they are usually based on manifest content, cannot be expected to tell us much about the wishes that motivate dreams.

The discovery by Aserinsky and Kleitman [1] that dreaming is usually accompanied by REM states has made it possible to determine just when an observed sleeper is dreaming. In this way, it has been discovered that dreams—instead of occurring in an irregular and fortuitous manner—appear in an orderly and lawful fashion throughout the night. The periods of REM occur regularly at intervals of about ninety minutes during the night; the dreams that accompany them occur, of course, at the same regular intervals. This fact seems at first to throw doubt on the role of disturbing wishes as the stimulus for dreams.[2]

Nevertheless, the psychoanalytic interpretation of dreams based on empathic understanding finds evidence that very

many dreams have been precipitated by disturbing wishes which have given rise to conflict. This fact, however, is not so difficult to reconcile with the regular occurrence of REM states and of dreams as might be expected since the disturbing stimulus that gives rise to the dream wish always dates from the preceding day. This disturbing stimulus and the resulting conflict were repressed during the day but waited until the REM state to precipitate the dream. We might say that the disturbing stimulus led to the psychological content of the dream whereas the REM state led to the process of dreaming regardless of content.

In the remainder of this discussion we shall illustrate these relationships with a dream analysis. But first we must discuss another difficulty in dream interpretation and how we deal with it.

Every dream has many meanings and fulfills many wishes. This makes dream interpretation a very complex process. To simplify this process, we search for the single conflict with which the dreamer was *preoccupied* while he was dreaming. This we call the focal conflict.

In interpreting a dream, our working assumption is that the various meanings of a dream fit together intelligibly. Each dream must also fit intelligibly into the dreamer's real-life situation at the moment of dreaming. These two working hypotheses prevent us from being content with a mere list of possible overdetermined meanings of a dream. They are our most rigorous check, indeed, our only adequate check, on our interpretations. We try to make our standards very strict. When we really succeed in interpreting sensitively and correctly, the parts fit like the most beautifully constructed jigsaw puzzle, each new bit of evidence making the fit more perfect.

We use the term *cognitive structure* to designate the way in which the meanings of a dream fit together and the way that they fit into the context of the dreamer's situation in real life. We think of the cognitive structure of a dream as a constellation of related problems. In this constellation, there is usually one problem on which deeper problems converge and from

which more superficial problems radiate. This was the dreamer's focal conflict at the moment of dreaming. Every focal conflict is a reaction to some event or emotional situation of the preceding day which served as a *precipitating stimulus*. As a check on our whole reconstruction, it is most important to find the dreamer's focal conflict and the precipitating stimulus which activated it.

To illustrate the interpretive process, we have chosen a dream dreamed in the Dream Laboratory by a patient of Dr. Whitman. About a week before her night in the Dream Laboratory, the patient had a dream of a completely arid desert with nothing growing, nothing happening, nothing moving. At this point the analyst had suggested that she might use the Dream Laboratory to see if they could recover some dreams, since both this dream and the long period of no remembered dreams had made the analysis bog down somewhat. The patient agreed and did sleep in the Dream Laboratory on Thursday, April 27.

When she came for her next hour, Saturday, April 29, her account of the night in the Dream Laboratory began with a confession of her feelings of insecurity. When the technician called her name to come down the hallway, she felt as though somebody were pulling the rug out from under her. Her first two dreams, she said, were completely gone and even her third dream showed resistance, representing her as out of the Dream Laboratory and walking down the hall.

This third dream (as recorded that night and reported in her next session) began with the patient having already gotten up in the morning.

> I was standing at the desk as though I had been a patient in the hospital who was signing her release papers. There was a woman seated there; a doctor introduced himself. I was very anxious to get on my way. They were looking at papers and I was signing my name. I thought my handwriting was different than it used to be [larger and like my husband's], and I compared it to yours [A's].
>
> Along to this corner desk area came Mary Spigot. She works at the Red Cross. I was embarrassed and upset that she would

know I had been at the Dream Laboratory, and then I thought, "It doesn't matter."

I started down the hall to the bathroom with her behind me. I was about to go in the men's john where there were two urinals. I thought I could duck in there, but then I thought it was not really handy because I was pregnant. I thought, "lucky men; everything is handy for them!" I gayly said this to Mary Spigot and she laughed. I woke up and wanted to go to the bathroom. In other words, I began the dream as though I had waked up and was leaving the hospital without having dreamt anything.

"Why Mary Spigot?"—the patient continues in her associations. "I'm not fond of her; she perplexed me from the beginning."

We get the first impression of the reason for the resistance in this dream from the appearance of Mary Spigot, whom the patient describes (in her associations) as a person who is "not well put together." In fact the patient thinks that Mary "is really borderline." "I have heard that she has been through analysis, but I don't believe it. She is the mother of all the kids on the street, but does it in a peculiar way. Who could Mary Spigot stand for?" When the analyst answers that the way the patient is talking over her shoulder to Mary suggests that she stands for him, the patient laughs and says, "Oh, no! I'd like to know what's going on here. The whole experiment was like having a baby and not being able to urinate. Then they have to come and catheterize you. I just couldn't produce. It was like children who sit on the potty and they say that they can't produce. I'm very angry with myself, not with you. I wanted to please you and I couldn't. I felt so ashamed when I had to mumble into the microphone, 'I don't remember anything about the dream.' "

To paraphrase, the patient confirms the analyst's suspicion that Mary Spigot in the dream is a reference to the experience in the Dream Laboratory, but the patient suspects that Mary is a reference not to the analyst but to herself; she was mad at herself, not at the analyst. She continues that she feels like crying because she was not able to be sufficiently relaxed in the Dream Laboratory. She recalls that when she was all attached

to the wires and electrodes and was drifting off to sleep, she immediately woke herself up in order to maintain control of the situation.

A later association gives more meaning to this identification of herself with Mary Spigot. She thinks maybe Mary is related to one of her father's sisters who was in and out of sanitariums—her aunt used to run nude through the streets and was an alcoholic (like Mary). She recalls that her aunt was always an extremely bizarre woman who frightened her by peculiar actions. She adds that her father, too, like Mary, "isn't very well put together." "My mother has commented that I depreciate John, just as she depreciates her own husband."

The identification of Mary with this aunt now makes clear why the patient needed to protect herself from drifting off to sleep; for her, dreaming is equivalent to losing control of herself and becoming like her "crazy aunt."

In the hour, the analyst interprets this fear to her. He asks if she was not afraid of losing control and becoming like her aunt. The patient agrees and says that she was "afraid of a blow-up." She is afraid that her unconscious will come "bursting" out sometime. She did have the thought that she was attracted to becoming a psychologist because of a fear of this crazy part of herself. The first time that she tested a patient in the mental hospital she said to herself, "This is not the way out!" She then felt that Mary stood much more for psychosis than for the analyst. (The analyst commented that it was probably both.) She agrees, all her life she has had to be the opposite of this aunt. The analyst commented that in order to keep up this image of complete normality, she repressed anything kooky including even the slightest bit of rebellion in her adolescence. She answered that this was true—she never did anything peculiar; she never did anything rebellious. In fact, her mother often brags that she never had any adolescent difficulties with *her* daughter.

We are now ready to make the first hypothesis as to what is the focal conflict of dream three: the subject wishes to produce a dream for the analyst but feared if she allowed herself to

drift off to sleep, in order to dream, she would lose control of herself and become like her crazy aunt.

However, this focal-conflict hypothesis does not yet account for the second half of the dream—the part about the impulse to go to the men's toilet—but not being able to do so because she was pregnant—followed by the remark, "Oh, these lucky men; everything is handy for them."

One of her first associations was penis envy, and she then added that men are luckier, even about dreaming. Her husband has an easy memory for dreams and often says, "I wish I could give you some of mine."

Her rivalry with her husband about their analyses, was elaborated further in her hour of April 26, just preceding her night in the Dream Laboratory. In this hour, the patient said that she was so calm about going to the Dream Laboratory that she felt ridiculous. "Two months ago I would have said, 'Who me?' The first time you mentioned that, I was really interested. I know now that I will sleep and I will dream."

She then went on to give numerous complaints about her husband: their inadequate house, the fact that she must climb up and down the stairs, and that he does not seem to be getting ready for the baby. The house is just barely large enough for their first child, age two, but will not be large enough for the two children.

She then said, somewhat bitterly, that her husband has stayed home four nights in a row, for the first time in four years. She has great anger at the husband's therapist, Dr. V., who said that it is the quality of the time at home, not the quantity. She is angry at Dr. V. because he is terminating her husband this summer and she feels that her husband has a long way to go.

Thus, in the light of this preceding hour, it is clear that her wish in the third dream in the laboratory to produce a dream for her analyst is part of her rivalry to finish her analysis as soon as her husband does. This competition with her husband is expressed in the dream in terms of the subfocal fantasy of which it is derivative—of a fantasy of being able to urinate in the men's toilet and then finding herself unable to do so.

Thus, a slight expansion of our initial focal-conflict hypothesis fits this part of the dream also:

a wish to produce a dream for her analyst
as part of a competition with her husband's analysis
(in conflict with)
fear of losing control and becoming crazy like her aunt.

Conclusions

This dream illustrates the fact that a patient's having been referred to a dream laboratory will often be the precipitating stimulus for a dream dreamed in the laboratory. If the technique of referring a patient in treatment to a laboratory is followed by other investigators, one could expect that a somewhat similar focal conflict might be stimulated, especially the disturbing motive of wishing to produce a dream to please the analyst. Conclusions could then be drawn from the reactive motive as to the cause of dream repression since one possible reason for referring a patient would be failure to produce dreams in the analysis. In this instance the reactive motive was fear of loss of control.

We shall conclude with a slight expansion of our discussion of the relation between REM state and psychological content (focal conflict) in dreams. The essential point is that the precipitating stimulus for the dream dates back to the preceding day but was then repressed. This suggests that the function of the REM state in dreaming probably is to release the precipitating stimulus partially from repression and thus to start elaboration of the resulting focal conflict in the process of dreaming.

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DISCUSSION *

WILLIAM OFFENKRANTZ

I HAVE HAD the opportunity for extensive contact with Dr. French, first as a student and more recently as a colleague. I believe the necessarily brief case material with which he is working here does not lend itself to the most fruitful demonstration of his focal-conflict theory and method of analysis. This approach has been most brilliantly and convincingly explicated in his volumes on *The Integration of Behavior*,[1] in which he had the context of a full course of psychoanalytic treatment upon which to base his conclusions.

His interpretive task for the case he discussed was similar to our own interest in understanding the psychological relations among all the dreams of a night when they are elicited in a laboratory from a patient in treatment. Our group has taken the next step in that we are systematically utilizing psychoanalysis, characterized by intensive analysis of the transference, as a method for simultaneously treating a patient and investigating these relations. This method has been specifically chosen to get at the latent content of sequential dreams. Although the psychoanalytic method is uniquely suited to this task, the theory upon which it is based clearly limits the range of hypotheses which can be generated.

Our preliminary work from 1958 to 1966 led us to certain insights which have had implications for the current organization of our treatment investigations. Some of these seem highly relevant to Dr. French's evaluation of the clinical material in the case he presented. First, we decided that any patient will probably displace hostile and libidinal feelings from the analysis to the laboratory and the investigator who works there, and will also feel himself in competition with the investigation for his analyst's interest. Therefore, we decided to decrease the fre-

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* The work upon which this discussion is based was begun in 1958 and continues into the future as a close collaboration among a group whose members currently consist of Jamie Thompson, M.D., Arnold Tobin, M.D., Roy Whitman, M.D., and the author.

quency of our patient's nights in the laboratory from once weekly to once every four months, to diminish the intensity with which the patient displaces both anxiety and pleasure-seeking from the analysis to the laboratory. Second, we decided that in order to achieve an understanding of the relations among a night's dreams we needed a workable therapeutic alliance in which the transference could be analyzed. Third, we decided that the psychiatrist might be inhibited in his ability to note and analyze these reactions in the patient because of his own emotional investment in the research. With further understanding, this inhibition regularly turned out to result from the guilt associated with the split within a therapist who is simultaneously an investigator. Consequently, we decided to forego the possible advantages of investigating our hypotheses separately from the conduct of the analysis, because it became clear that the therapist needed the group's help in integrating this split within himself. Our confidence in the efficacy of this method, as well as in the necessity for it, has thus far been borne out by the way in which the therapists in our group have functioned with their patients.

With these general remarks as a background, I would like to discuss several points about the clinical material with which Dr. French worked today, without the restrictions imposed by a full presentation of the case. Is it possible that this pregnant woman's dream of an arid desert contained a reproach, within which was the wish to be watered, fertilized, or gratified in some other way by the analyst? If so, it might follow that her reaction of feeling the laboratory investigator's "pulling the rug out" by calling her to the laboratory can be viewed in the context of her need to wake up and regain control in the hypnagogic state, and the forgetting of each of her first two dreams when threatened by contact with the inquiring investigator. That is, was she threatened by the exposure of her anger at the analyst for sending her to the laboratory instead of gratifying her transference wishes? On the basis of our previous experience with patients who are simultaneously being investigated in the dream laboratory, I further suggest that this anger might

have been directly expressed as a wish to destroy the experiment in the first two forgotten dreams. Then it would follow that only on the third awakening, when she can dream of the fulfilled wish to leave the situation, can she dare to recall the dream. In this view, her feelings of shame and inferiority (expressed in the manifest dream about things being more "handy" for men and comparing her handwriting with the analyst's), supposedly based on her lack of a penis, would be a defensive retreat from her guilty fear at her wish to destroy the experiment. This interpretation derives support from the material which suggests that she may be as jealous of the laboratory investigator's relationship with her analyst as she is of her husband's relationship with his analyst.

A crucial omission in the material we have been given to work with today is an account of the patient's behavior with the laboratory investigator in the presleep, postsleep, and awakening periods. Such material would be important in evaluating the strength of the alternative interpretations I have suggested.

Our awareness of the crucial importance of the patient's interaction with the laboratory investigator in understanding the relations among the night's dreams first became clear in 1965 upon reworking the material which Rechtschaffen and I had published earlier.[2,3] Initially, that patient had come to therapy with strong feelings of humiliation at expressing his need for help. This feeling was increased when he was asked to participate in the laboratory investigation, and by the associated reduction in his therapy fee, in return for which he slept in the laboratory once a week. He utilized the inconvenience of the laboratory as a vehicle for the discharge of anger against the therapist, and he made it clear he held the therapist responsible for all that went on in the laboratory. Since the treatment was supportive psychotherapy, he was encouraged to be more aggressive in his work, with women, and toward the laboratory investigator (which the patient did with increasing success). Eventually, he reversed his initial masochistic submission to the laboratory investigation into a sadistic attack which he experienced as a retaliation against the outside force

competing with him for the therapist's interest. He implied that the therapist's concern for the investigation was not compatible with his own need for treatment, and he was able to stimulate both the therapist's and the laboratory investigator's guilty anger. The most complete discharge of his anger against the laboratory investigation occurred in the form of longer and eventually unintelligible dreams. As a result, the therapist abandoned the effort to obtain associations to these dreams during the treatment hours. At that time, the patient referred to the laboratory dreaming as "having a big, fat bowel movement." He accused the therapist of having encouraged this outlet as an alternative to bringing his feelings into the treatment.

In retrospect, we felt the therapist's failure either to gratify or interpret the patient's passive longings in transference led to a heightening of the patient's frustrated anger and aggression. Eventually, the hostile discharge of this tension in the laboratory both mobilized these feelings and afforded a sanctioned opportunity for their discharge. This was particularly evident when we reviewed the exchanges between the patient and the laboratory investigator in the presleep and postsleep periods, as well as during the awakening for dream reports and associations.

On one night which was especially illuminating to us in regard to the importance of the laboratory investigator as an influence on the night's dreams, the following sequence occurred. The first dream, with its later associations in therapy, clearly expressed a latent wish to destroy the investigation. During the first awakening, when the dream was reported, the patient masochistically provoked the laboratory investigator into depreciating the patient's work by comparison with his own. Then, in the second dream, the patient clearly expressed his own sadistic triumph by visualizing the laboratory investigator as working for him in a menial task. Our understanding was that the patient's need for punishment following the first dream was satisfied by having provoked the laboratory investigator into depreciating him during the first awakening. Thus, the

second dream expressed a correct awareness of the situation of his triumph. However, this interaction distorted whatever he might have produced more naturally in his second dream by virtue of his guilty reaction to the destructive wish of the first dream.

After several experiences similar to this, we are attempting in several ways to decrease the patient's use of the laboratory investigator for extratherapeutic gratifications of every variety, including the need for punishment. First, we ask that the laboratory investigator tolerate the frustration of functioning as an unusually well-paid technician without any additional participation in the group's work and with minimal contact with the group. In this way, the laboratory investigator's guilt and his emotional investment in the patient as a research subject are diminished; his emotional reactions to colleagues on the research team are minimized. Second, the laboratory nights are organized so that the laboratory investigator has no access to the dream reports, because he awakens the patient by using a buzzer from an adjoining room and does not enter the sleeping room to start the recorder. As would be expected, the patients have been actively interested in testing whether this part of the total situation is to be trusted in terms of confidentiality, and whether it will be frustrating in terms of their need to involve the laboratory investigator.

Thus, we are beginning to understand the ways in which the laboratory situation has become the focus of resistance in the initial stages of therapy. The patients have used the laboratory both as a defense against the transference and as a defense transference. In this sense, the laboratory becomes like paying the fee, or coming on time, or any other aspect of external reality which the patient can use to discharge transference feelings outside the analysis. This use of the laboratory is easier to note and analyze than the more subtle, pervasive, characterological ways in which the patients incorporate the laboratory situation into a defense transference, which smoothly and unconsciously serves to resist total commitment to the analysis and to avoid the pain of a transference neurosis.

As an example of this, in a more recent case the patient was superficially using the research to demand a *quid pro quo* from the analyst. He visualized the research group members in his dreams as party-goers in a nightclub enjoying watching him perform. Thus, he felt justified in his efforts to manipulate the analyst, which took the form of requests to have corrupt insurance forms signed, special privileges in the arrangements of the analysis, and so forth. He assumed the analyst would feel guilty because the patient felt exploited, as a projection of his own tendencies to exploit. However, early in the analysis we suspected, from some of the dreams that had occurred in the laboratory and had been forgotten, that behind this characterologic use of the laboratory lurked a deeper concern. For him to be involved in the research represented a frightening identification with his dead mother and his fear of his anger and guilt toward her. She died of metastatic carcinoma when he was nineteen, after a debilitating illness of five years during which time she frequently went to her doctor's laboratory for new and experimental treatments.

In summary, from this and similar experiences in our current work we are gaining a deeper understanding of the ways in which the patients are using the laboratory investigation in the early stages of therapy. In conjunction with this, we have become increasingly aware of the importance of paying close attention to the transactions between the patient and the laboratory investigator; and finally, we are learning more about the problems of the therapist-investigator split within the treating analyst.

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Chapter 4

A Culturalist View

The Dream as Human Experience

WALTER BONIME

SINCE THE designation *culturalist* indicates the framework of the ensuing questions and suggestions, I will attempt briefly to clarify this designation. It refers to a psychoanalytic approach which (1) considers personality as a product of a culture and its formation basically as a process of interpersonal experience; (2) assumes that this continuing process is crucially influenced by constitutionally determined variations in styles and capacities for learning and sensory and physical activity[30]; and (3) regards the developed personality as functioning consciously or unconsciously in terms of learned values. The culturalist rejects "energy distribution and instinctivistic assumptions in conceptualizing genesis and functioning of personality.

The above is quoted from the author's chapter in *American Handbook of Psychiatry*.[4] The passage begins: "The term 'culturalist' is imprecise. It is used here, however, to designate those who regard interpersonal experiences as the dominant force in the development and dynamics of personality, who regard constitutional factors as codeterminants, and who see environment and personality in constant structure-determining and function-determining reciprocal interaction." For a clear, extensive statement of the evolution of the "culturalist" orientation, see Montague Ullman's Foreword[31] to the author's *The Clinical Use of Dreams*.[5]

There has been no attempt to establish a culturalist group or school, or to organize this orientation into a formal body of knowledge. Such writers as Karen Horney and Bernard Robbins, Adler, Sullivan, Clara Thompson and very many others, including current workers in psychoanalytic and associated behavioral sciences have wittingly or unwittingly enriched, and

continue to enrich, the above-mentioned conceptual framework. Von Bertalanffy,[3] for example, states: "The evolution of symbolic worlds is identical with the creation of a human 'universe' . . . the ego barrier is not primarily 'given,' but rather develops in phylogenetic evolution, individual development and cultural history." The processing of all the stimuli and interactions of the waking life as it continues during sleep, and the possibilities this brings about for influence on waking life, indicates the role of the dream as an important human experience.

The clinician, regardless of his psychodynamic orientation, must examine the data emerging from studies on the psychophysiology of sleep to find its implications for his theoretical thinking and therapeutic endeavors. One must agree with David Foulkes[14] when he says: "it is hoped that this discussion has indicated some of the possibilities which the Aserinsky, Kleitman, and Dement dream-collection technique offers with respect to resolving or clarifying some of the major issues in . . . psychoanalytic dream theory. But the major contribution of this technique may well be the generation of altogether new theories of dreaming . . . ." Foulkes goes on to say that these new theories will be "solidly based upon experimentally derived dream-process data, and theories which articulate with modern neurophysiological evidence upon the nature of the sleep phase in which dreaming occurs." The "generation of new theories" is a welcome and stimulating prospect, but it is not likely that these new theories can be confined in their derivation to "experimentally derived dream-process data." They should eventually, as Foulkes says, "articulate with modern neurophysiological evidence," but this is not the time to turn away from that broad range of human understanding, observation, and experience which cannot be circumscribed within a dream laboratory.

Foulkes,[15] in a later paper, rewardingly addressed himself to the limitations of both quantitative-nomologic and qualitative-clinical approaches. And finally, Chein[8] eloquently urges "an approach to Man that respects our primary-naturalistic if you will—observations of his behavior . . . [and sees] little

scientific merit in experiments that have lost contact with primary subject matter. I am all in favor of rigorous definitions, sound conceptualization, intersubjective validation, and well-founded, thoroughly tested conclusions; but I am opposed to mistaking these goals of science for its starting point."

One of the great difficulties in assessing the vicissitudes of the sleeping individual lies in the limitations of our knowledge of human beings in their waking state. The processes of development of personality—the way the whole personality functions interpersonally, affectively, motivationally, mnemonically, creatively, and incidentally clinically and in the laboratory—raise questions that, when they are pursued simultaneously, can illuminate sleeping processes and reciprocally can receive elaboration or revision from study of the sleeping and dreaming states.

Whatever areas are reached into for the formulation of new answers, the framework and *emphasis* of these explorations for the culturalist is that human dreaming is an activity experienced by a creature who is the product of much more than biological evolution; he is equally a product of societal evolution. Whatever organismic purposes are fulfilled in terms of REM physiology, the symbolic aspects of dreaming, the highly developed symbolic systems which man alone has, comprise an activation during sleep of his stored record of experiences with other human beings. This store includes the cultural heritage of objects and behavior which in themselves have been conveyed to the dreamer through constant observation of an interaction with other people.

Bearing in mind this immeasurable quantity of stored experience, one may raise a theoretical question: Whether man, alone and sleeping, can be considered to exist outside an interpersonal context. Ullman,[32] who developed psychiatrically in a culturalist milieu, in discussing the work of the more classically oriented Ephron and Carrington,[12, 13] takes exception to their introducing the concept of regression during REM. He objects that "to apply this ['organized but immature behavior'] to a sleeping individual is again to take a view from the waking

state." Later in the discussion he spells this out more fully, stating: "It is only when the last vestiges of our investment in waking life have been dissipated that there exists the freedom to, and the underlying physiological conditions for, reflecting the reality of one's existence in a qualitatively different way, a way that encompasses a wider and truer version of ourselves than it may be comfortable to live with while awake." It would seem that the Freudian and the culturalist, while disagreeing in their descriptions of the behavior of man's dreaming self, nevertheless make a common basic assumption: that the dreamer is functioning as if he is in some way changing his own view of his interpersonal problems either by retiring backward into infancy or by leaping forward into symbolic insight. In both evaluations, however, the function of dreaming involves dealing with life problems.

Whatever divergences exist in the psychodynamic schools of thought, the expressed theoretical positions rest fundamentally, in both cases, on a sleep-wake continuum of problem-solving, and both stand in sharp contrast with the hypothesis of Dement[9] that dreams may reflect in an incidental way the working off of metabolites in the brain. The same type of concept is expressed by Evans and Newman,[11] who liken dreaming to the process of clearing accumulated clutter from a computer. If dreaming represented a physiological form of clearing excessive input, it would constitute an inefficient system, since many dreams become most tenacious memories. A more serious challenge to the clearing-away model, however, is that the material of dreams shows selection. In view of the measureless abundance of impressions garnered during a day, it seems clear that *some* process must effect what is retained and what is dumped, and that the process must be in some way related to the unique personality of the dreamer, which has evolved from his own unique history.

The sleep laboratory has not refuted the psychodynamic in favor of physiological connotations of dreams. There can be no either/or—to think of the new findings in such a way would be a step backward in all our efforts to understand human func-

tioning. One of the contributions of the laboratory has been demonstration of a far more extensive occurrence during sleep, in realistic or variously modified forms, of the happenings and concerns of waking life. Dreaming has been valued through history and in many cultures as significant experience.[19, 22, 26] The evolution of clinical and theoretical dynamic psychiatry, commencing with Freud, has depended to a large extent upon dream material. The practical and important work of using dream material to help in the treatment of personality pathology, as well as to detect personality assets, will continue to be the province of specially trained clinicians.

This practical work includes engaging the patient cooperatively in an activity that is, so far as interpersonal and affective elements are concerned, far more complex than the cooperative involvement in the laboratory subject's experience. It is the work of correlating the dream material with the painful disturbances in an individual's affects, productivity, and interpersonal relationships in order to achieve new insight, which in turn may make possible a changing and healthier personality development. Louis Breger[7] wisely and tersely states: "The distinction must be maintained between dreams and what is done with recollected dream material." This might be elaborated in the present context: The methods, uses, relationships of personnel, and the goals of gathering dream data are exceedingly different if we compare the laboratory and the psychotherapeutic office.

There is a crucial aspect of the gathering of dreams, neglect of which has curtailed the value of the data in both laboratory and psychotherapeutic setting—that is the inquiry into the feeling in dreams. Anger, fear, anxiety can all be recognized in laboratory animals, but the range of affect in human beings is far wider, the gradations more subtle, the combinations more perplexing. Suzanne Langer,[24] in her recent book, says it well when she states that man's "departure from the normal pattern of animal mentality is a vast and special evolution of feeling . . . . This deviation from the general balance of functions usually maintained in the complex [evolutionary] advances of

life is so rich and so intricately detailed that it affects every aspect of our existence, and adds up to the total qualitative difference which sets human nature apart from the rest of the animal kingdom as a mode of being that is typified by language, culture, morality, and consciousness of life and death."

The wide spectrum of human feeling is reflected in dreams, and while a great deal of data is gathered regarding the story and imagistic content, most of the time little effort is made to *obtain* and record the experienced emotion. Hall and Van de Castle,[20] in their voluminous collection and analyses of dreams, were "surprised at how few emotions are actually reported." And yet so much of the meaning of the dream specifically for each individual will depend upon the accompanying or associated feeling. A rainy day in the dream may be associated with a pleasurable feeling, which for one person might indicate pleasure in spoiling someone's picnic; for another the childish pleasure of abandon, splashing in puddles, and collecting earthworms; for still others the same rain would be associated with gloom and depression; for another dreamer, rain might be accompanied by anxiety connected with ideas of lethal lightning; or for a different dreamer, rain could be accompanied by deep sorrow and relate to the loss of someone loved who was buried on a rainy day. It is through pursuit of, and examination of, this endless diversity of possible specific meanings, as revealed by accompanying (experiential) dream emotion and associations to it, that the connotation of the dream in the functioning personality is determined. One could not think of evaluating literature that contained no affective terms or implications. Yet dreams, so largely imagistic and episodic as reported, are constantly collected and evaluated for content and meaning without the accompanying and determining affect being explored.

If a *strong* feeling has been present in a subject's dream—such as the anxiety of a nightmare, deep sorrow, anger, or unusual gaiety—the individual tends spontaneously to report it. Or, in descriptions, affective terms and phrases such as handsome, gruesome, pathetic, kindly, ugly, evil smile, sneaky

looking, and protective suggest affect without necessarily identifying the dreamer's response to the image. Therapist and experimenter sometimes show a readiness to assume or interpret the presence of feeling. Even so meticulous and imaginative a worker as Foulkes,[16] however, in constructing his Dreamlike-fantasy (Df) scale and using it to investigate NREM mentation,[27] has tested for eight values but no indication of affect except the general term *dramatic*. On such a scale, even the zero ("no content report, feels mind blank") might have an experiential affect which might be the only lingering remnant of a dream. Clinically we find that the search for dream affect often results in the recall of a dream or a lost significant part of a dream. In his intensive provocative study of the dreams of four preadolescent boys, Foulkes'[17] discussions of the dreams are replete with such references as "threatening creatures," "becoming a big guy," accidents, fighting, relationships with father, sister, and so on, but not a single reference is made to a statement by any of the subjects describing or making any exploratory effort to detect his accompanying feeling.

There are, however, some encouraging signs of greater interest in capturing and seeking the implications of the affective component of dreaming. Witkin[34] has included a careful investigation of experienced affect in his experimental design. Hall and Van de Castle[20] caution the dream-content analyst against careless assumptions regarding dream affect. Breger[7] makes constant reference to affect in discussing an extensive dream protocol, and centrally implicates "here and now" as well as past feelings in a concept of dream formation. He says, "certain memory systems have been activated during the period prior to sleep and have set into operation emotional reactions that feed back and keep these particular systems active or 'ready.' Such activation may have been initially [instituted] by a specific event . . . or by a train of thought or fantasy. But the involvement of emotional reactions serves to potentiate these systems as opposed to many others that are in operation during the presleep period." And

in describing subsequent REM activation, he says, "Dreams are one output of these memory systems, an output which includes images, thoughts, feelings. . . ."

The questions that arise are, then, (1) Does the neglect of affective data regarding the dream and its life context constitute a serious loss or even distortion of data-gathering? and (2) If the memory systems are intricately involved with feeling, are we not in a position to recover more dream data by inquiring or training the subject to seek, in reporting, the affects in the dream? Clinically this works, and such experience would in itself be a reasonable focus of investigation. Researchers and therapists alike often say there was no feeling reported, or take a first denial as a final answer. Breger [7] himself, for all his illuminating emphasis on affect, assumes and interprets in the first case presented in his monograph a great deal concerning the subject's emotions, but fails to gather, at several points, pertinent and seemingly available affective data directly from her. Since it is quite generally recognized that the majority of people in our culture are reluctant to inspect, acknowledge, and communicate their genuine affect, this omission cannot be taken lightly. More attention to affect might have produced material both quantitatively and qualitatively different.

Apart from these considerations of the psychodynamic interrelationship of affect and memory, there is further challenge to both psychological and physiological disciplines in the understanding of the factors leading to forgetting and remembering. There is some line between the physiological and psychodynamic factors. Such a line, it would seem, certainly exists when Baldridge [2] reports that "After reaching a maximum within three minutes of the cessation of [REM] activity, the probability of dream recall drops to a minimum after seven to fifteen minutes of quiescence, then rises to a value almost equal to the maximum." Such phenomena seem clearly to lie on the physiological side of the line.

The long history of psychoanalytic practice indicates, on the other side of the line, great variations in the capacity for

dream as well as other biographical recall, and the variations seem dependent upon differences in personality and vicissitudes of the ongoing emotional context. Schonbar [29] has reported character variations correlating with differential rates of dream recall. Arkin's [1] review of the literature on sleep-talking, including his own experimental observations, represents, besides his particular focus on "somniloquy," a document filled with variations in the recall, forgetting, and technical (hypnotic) retrieval of REM and NREM dreaming.

It is difficult to separate sharply crucial categories of interest in the investigation of dreams because the interrelationships are so profound, complicated, and interdependent. Memory as a focus of interest, both experimentally and clinically, evokes consideration of affect, personality, and personality development, perception, conceptualization, creativity, and behavior. The very act of dreaming, whether it takes place in association with REM or NREM physiology, involves the activation of stored information derived from experience in a human environment. Perception, too, is considerably determined by memory, which influences how it takes place and sometimes even what is perceived. Conceptualization arising from perceptions may be shaped importantly by the affect existing at the time of perception, and the affect in turn is reinforced or altered by the perception.

Leeper [25] discusses emotions themselves as "perceptual processes . . . subject to infinitely varied sorts of modification under different cultural and individual circumstances." The individual's feelings at the time of new perceptions and his ideas about them influence how and when he recalls them, what evokes them, how the memories may be modified, and how and when the individual forgets.* These mnemonic pro-

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* An interesting example of the alterations in memory is set forth by Lillian Robbins [28] in her comparison of parental attitudes toward and observations of their infants. She questioned the parents about the same attitudes and observations as recalled again two years later and found some remarkable modifications, in some instances apparently made in order to accord with later acquired ideas of infant-rearing.

cesses in turn influence the person's behavior, including stimulation or dampening of curiosity and behavioral implementation of curiosity or its avoidance. The relating of stored data to new stimuli, the rearrangements and new interconnections of the records of experience, including the accompanying emotional elements, are also part of the vast complex designated as creative processes. All this activity is not only an expression of personality but is also part of personality development.

An intriguing consideration here arises from the fact that, during sleep, great numbers of interactions continue to occur among the stored data. The question is, does this dreaming activity have influence on the personality of the individual even though he does not recall it? There is no question that the *recalled* dream may constitute an active influence upon the individual. There is ample evidence of this from psychoanalysis, anthropology, history, religion, and folklore. We know now, however, that the predominant portion of dream mentation and its associated affect is *not* retrieved. Can this vast amount of continuing mental and emotional activity that occurs during REM time and (we learn as research continues) even during an increasingly larger share of NREM sleep [18]—can all this mental activity possibly have *no* effects on the evolving personality?

Although the continuing evolution of personality is a basic postulate of the culturalist orientation, the new tantalizing question is whether some form of alteration of the individual takes place during his dreaming experience, without recall of the dream. The question has practical implications in psychoanalysis, as speculated by this writer [6] in an earlier statement justifying occasional disregard of dream data on the basis that "the dream itself may be regarded as an experience" the value of which will not be entirely lost if not analyzed. This dream activity may be an important factor operating in prolonged sleep therapy. A neurophysiological basis for developmental activity during sleep is described by Hernandez-Peon [21] and summarized by him in the statement that "dur-

ing dreaming the Conscious Experience System processes some of the information which has been stored without awareness, so that the most relevant items can be selected by a variety of types of associations with memory tracings consciously available, and thus be utilized for future adaptive behavior . . . it may explain many examples of ideational problem solving occurring during dreaming." Breger,[7] too, states that "the possibility remains that even as private, unrecalled events, [dreams] may serve the important function of integrating aroused information into existing structures."

This enormous amount of dream activity emerging from constantly expanding memory stores may then be integrative and may be regarded as such chiefly in terms of man in his human environment. There is a further unavoidable inference. One must consider how enormous must be the influence of dreaming on the development of any civilization. Dorothy Eggan,[10] the late anthropologist, has described a twenty-year study of the interrelationship of social behavior and structure and the role of dreams among the Hopi Indians. This interchange is, relative to our technological civilization, a readily discernible and overtly expressed simple interaction. Ullman [33] has discussed a more complex integration of dreams and their "social roots" in the context of our multiderivative Western culture. Each day each individual receives myriad stimuli from the human (as well as physical, and much of that man-modified) environment; each night these are processed along with the previously stored data of memory. In this constant interaction and integration, how many problems are solved, and consequently how many increments of civilization's development are attributable to dreaming? To put it another way, dreaming may account to a significant degree for the fact, so simply remarked by the biologist Hudson Hoagland,[23] that "Psychosocial evolution is thousands of times faster than biological evolution."

While being alert to these differences between physiological states and personality functioning, it is necessary to bear in mind also the relative crudeness of language in communica-

tion. One must always ask oneself how close description and report can come to the actual experience—it is not beyond the dignity of the scientist to recognize the ineffable. Certainly the reported dream, like most emotional and creative experiences, is only a crude reflection of the complex experiences preceding communication. Even, however, if the dreamer had the vocabulary with which to report, how close would he ever come to recapturing the full experience and tone of his dream? How can we increase our capacity to understand the dream in its totality as an expression of a highly complex biological creature, constantly, awake and asleep, dealing with the teeming stimuli and variables of a human milieu? These are questions which must remain open for both experimenter and clinician.

In concluding these remarks, I am uneasily aware that while contributing to Part One of this volume subtitled The Challenge Posed to Dream Theories by The New Biology of Dreaming, I have not really formulated challenges to my theoretical position. I have instead issued some challenges. After all, it might be claimed that the new biology of dreaming has found a significant source of its vigor in the fertile soil of more than half a century of clinically accumulated dreams. All of us have problems to pursue, separately and collaboratively, in both clinical and experimental areas, chiefly problems relating to personality development, memory, communication, and affect, and I am most strongly impelled to focus upon these challenges that we have in common.

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DISCUSSION

MONTAGUE ULLMAN

THE CULTURALIST credo is well formulated in Dr. Bonime's opening statement. Much that follows appears to me as the response of a well-informed psychoanalyst, regardless of his theoretical position, to some of the trends emerging in the plethora of contributions stemming from the laboratories. His emphasis, that social experience nurtures our dream life and that any adequate theory must consider man as a social as well as a biological organism, is well justified. He offers a timely admonition to those physiological investigators whose theory-building enthusiasm outstrips their understanding of the many and versatile ways in which dreams enhance clinical practice. His emphasis on the somewhat neglected role of feelings is a valid clinical contribution in any theoretical context. This might also be said of his reminder of the many complex personality factors at play influencing dream recall and forgetting. Dr. Bonime has, in short, offered a common defense of psychoanalysis against the Philistines—but has he offered the essence of a culturalist view of dreams as separate or different from any other view?

Perhaps the term *culturalist* is an outmoded one, a residual designation from a bygone era when ideological rivalries between psychoanalytic schools were much more exciting and vital than they seem to be today. Perhaps the controversy became muted as psychoanalysis itself was upstaged by new developments. Except for the writings of Erich Fromm, the culturalist camp became remarkably quiescent, preferring to sail in nontheoretic waters. Dr. Bonime's book is a notable example of the extension of the culturalist view to the use of the dream in clinical practice.

Having raised these questions, I would like to define what I see as the problem and rather self-consciously veer off in a direction of my own before coming back to what I think is the crucial point raised by Dr. Bonime.

I think the loosely organized culturalist wing of the psychoanalytic movement is in somewhat the same position as mem-

bers of the Old Left who, in the thirties, offered theoretical remedies for the Negro problem and who in the sixties witnessed Negroes marching toward equality under very different leadership. The two main tenents of the culturalist position in its opposition to Freudian psychology were (1) that the biological underpinning of Freud's position, namely, his instinct theory, was wrong or at best an unproved assumption and (2) that his analysis of the influence of the social milieu upon the developing personality was skewed by the limitations of the sample he used. In terms of dream theory, the fact is that the first few bits of hard data coming from the laboratory did more to challenge the classical view of dreams than all of the writings of the culturalists over the many years before. It is no longer possible to consider psychological factors or repressed instinctual impulses as instigating dreaming. Serious questions can be raised concerning the dream as the guardian of sleep and the central role of wish fulfillment.

With regard to the culturalist's concern with social milieu, here too we witness a similar phenomenon. Movement took place, but not under the theoretical flag of the culturalists; the move was led by a new breed of animal, the social psychiatrist.

Even with regard to the psychology of dreaming, it seems to me that the phenomenologists who appear at times to eschew these troublesome biological and sociological concerns have done more to enrich our grasp of the immediacy and urgency of our dreaming experience.

Do I sound like a renegade from the ranks of the culturalists? I hope not. I think there is room for an important and significant contribution, and I think the culturalist tradition is the most congenial soil in which it can take root. This brings me back to Dr. Bonime's closing conjectures concerning the cumulative weight of dream experience and civilization. A splendid opportunity now exists for writing a new sociology of the dream in the same spirit and hopefully with the same brilliance that workers in the laboratory are hammering out a new biology of dreaming. Just as the latter

undertaking is best realized through the conjoint efforts of physiological investigators and clinicians, so the former will require a merger of clinical and sociological talent. Only through a venture of this sort will the ultimate contribution of the culturalist psychoanalyst to dream theory become a reality.

We mean two things when we talk about the sociology of the dream. We refer to the way in which institutions and social structures are experienced by the individual and reflected in his dream and the way in which the dreaming experience of the individual articulates with or, as in the case of Western culture, fails to articulate with a social ambience.

Most of the writing about dreams in this country, in contrast to the phenomenological school abroad, tends to assume a view from the waking state and in so doing divorces its discussion from the actual predicament of the sleeping human organism. Specifically, in the context of our present discussion, this involves attention to a number of items which are uniquely nocturnal in character. Insufficient consideration has been given to the existing indications that with the onset of sleep and, more noticeably, the REM state, there is a functional reorganization of the internal brain milieu. This suggests that any conscious activity going on at the time would be processed differently from the waking state. It further implies that before we can understand the dream in its unitary aspects we have to separate form and content and relate both independently to the physiological changes occurring at the time. This view has been elaborated elsewhere [1-4] but it may be said in summary, first with regard to form, that the processing of information at a sensory level assumes relative dominance over inductive, abstract, and conceptual processing and, second, in translating human social experience into sensory metaphors, there emerges an enormous potential for reorganizing and expressing past experiences drawn from the entire longitudinal history of the individual and selected on the basis of their relevance to a current unmastered life situation.

There is one further bit of ground that has to be cleared before inviting the sociologist in as co-investigator. The fact that the dream occurs as an involuntary experience has been subject to much misinterpretation—the most important, in my opinion, being the assumption of Unconscious at odds with Ego and gaining expression in disguised form.

As we enter a REM phase and to some extent in NREM phases, we enter into a unique experience, at least compared to the waking state. Our brains are working in spite of ourselves. Volitional elements are secondary, and the entire experience has an involuntary feel. We lack the ability to pick and choose the content and also lack the ability to play an executive and organizing role. My point is that this circumstance alone may be directly relevant to the fact that dream content gravitates toward the reflection of aspects of our experience which have a large involuntary or unmastered aspect. There is a congruence between the physiological state of the organism (sensory processing), the way this state is appreciated (something happening to the self), and the content appropriate to it (content derived from the waking state and selected on the basis of recency plus the presence of a significant residual involuntary component). In short, the brain, active in a way that is strange to itself, reflects aspects of experience that are strange to the waking self. This nocturnal content does not arise *de novo* but exists as background noise during the day, set off by marginal and fleeting impressions.

It is the concern with the unknown that links the dream to social structure. The primitive institutionalizes the unknown through myth and ritual. The dreams, incorporating mythical figures, establish a certain congruence with waking life. Our own cultural myths are less easily identified; but there is no doubt, judging from the amount of misery and suffering in the world, that, in relation to the unknowns that beset us, we live in an even more profound state of ignorance than the primitives. In another sense, we are even worse off. Since our own myths are neither explicitly personified nor

clearly recognized, a fragmentation occurs whereby they are dealt with individually by each separate psyche each night. There is no collective sharing or social structuring, so that each such dream expression is doomed to live out its life as an isolated personal fantasy.

I think we can begin to look at dreams in a way that can provide us with some information concerning the congruence we are seeking. If the sampling we are familiar with as therapists is any indicator, we are struggling in our dreams with problems of impotence, dependency, and aggression. These feelings are clothed in references to persons, events, and institutions—all of which have both personal and social meaning. Our first task is to identify how a social referent lends itself to use in nurturing or reinforcing historically molded feelings of impotence and so forth. Here we need the help of a sociologist to identify the institutional and structural references related to a given social order. Stated another way, the sociological approach or, better yet, the neoculturalist approach to dreaming would concern itself with a two-way effect. It would utilize the dream to identify the pathogenic potential of existing social structures and to identify the collective aspects of individual problems as reflected in dreams. This might provide us with a broader interpretive repertoire. Ordinarily we may say to a patient, based on information emerging from mutual work on a dream, "In order to change your situation you have to take into account the fact that up to now you have been blind to this attitude (feeling, tendency or need) in your past." On another occasion, it may be more important to emphasize certain unintended consequences stemming from group membership: "In order for change to occur, it is now apparent that you have to look at the price you are paying for your allegiance to Madison Avenue (Black Muslims, local political party, etc.). These are the groups (the community, the national issues) related to what you are dreaming about and which have the effect of offering institutional reinforcement of your feelings of impotence, dependency, etc."

What we have regarded as the personal unconscious is an artifact wrought by the separation in Western culture of social and personal myth. Freud, observing the result of this split in the dream life of individual patients, mistook an effect for a cause. A bind resulted wherein the liberating influence of psychoanalysis in effect sealed the door shut between personal and social myth. Until the connection can be reestablished between the dream and the related social structure, between personal fantasy and social myth, the individual is victimized both by the continued operation of the fantasy and by his inability to recognize and deal with its social origins. He is forced unwittingly to participate in the maintenance of what Bastide,[5] a French social anthropologist, calls a "social sewer service."

Bastide examines the "social framework of oneiric thought" in an original and stimulating way. Addressing himself to the task of reestablishing channels of communication between the psychic and the social, he has come up with a number of apt formulations. "In our Western civilization, however, the bridges between the diurnal and nocturnal halves of man have been cut." Is it not time, he asks, to "see how the twilight states of our life, how the dark and obscure half of man, extends his social half exactly as the social half feeds on our dreams?" . . . Society today refuses to allow oneiric images the passport and visa necessary for entry into everyday social activity. . . . Freud personalized the dream; now we must resocialize it."

Some of the ideas presented today took shape in my own pre-REM era. I hope I may be pardoned for veering away from Dr. Bonime's excellent presentation in order to include a plea for an examination of the way in which the social matrix of our lives influences our dreams in a supra-individual fashion. We have been nudged along in this direction by the cultural anthropologist and the sociologist. It is now time for the clinician to join forces with them in asking anew what dreams mean.

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Chapter 5

A Jungian View

CARL A. MEIER

DR. KRAMER'S project for this volume cannot be praised highly enough for two reasons: (1) Those interested in *dreams* by now ought to join forces and make a serious attempt at producing a number of working hypotheses for the application of this new technique in research related to the deeper *psychological* function and meaning of dreaming and (2) In this endeavor, the many schools of thought ought to stop forming pious denominations adhering to one orthodoxy or another and stop repeating religiously the gospel-truth they so faithfully believe in. They should, at long last, be open enough to the fact that dreams are far from being satisfactorily understood and that every one of the schools, so far, has only succeeded in making it more or less probable that the convictions of each have contributed to the understanding of one or the other of the untold aspects of this inexhaustible phenomenon. And, in view of past history, each school should humbly admit that we are far from having heard the last word about a phenomenon which has been such a vital riddle to men for thousands of years. In such discussions, all participants should therefore have a completely open mind; no "religious" or "political" climate should be allowed to prevail.

Just in the last thirteen years, we have had to learn from Kleitman and Dement something totally new about dreams which is absolutely fundamental (i.e. *periodicity*). Whenever in biology we come across a periodicity we can be sure that we have discovered a basic law that needs the most thorough-going and careful investigation. Since nobody had been aware of this law before it was shown to us by those two pioneers,

we should all admit that we have been sadly unaware of a basic fact concerning dreams and we consequently must be prepared to make an entirely new start and to, if necessary, review at least some of our treasured convictions.

Now, I have the pleasure to, allegedly, give you an idea of what the Jungian point of view might have to offer toward an understanding of some of those new findings. In 1967, my friend Dr. Thomas B. Kirsch, of Menlo Park, California, read a paper [5] to the APA Annual Convention in Detroit on exactly this subject. His title was "The Relationship of the Rapid Eye Movement State to Analytical Psychology." I shall, however, try to say something additional at this special occasion, rather than to repeat his ideas.

I wonder if the person who first formulated the title for the present chapter was aware of its difficulty, which is this: It would be relatively easy to say something more or less precise if there *were* a Jungian theory of dreams. But there virtually is none. Readers will find discussed the relevance of the few general convictions about function and structure of dreams held by Jung in Dr. Kirsch's paper just mentioned.

As you may know, Freud's book *Die Traumdeutung* had, immediately after its publication in 1900, a very deep effect on Jung and was at first wholeheartedly accepted by him. Only years later did he begin to take exception to the monotony of the sexual interpretation in which he thought the concept of the "censor" often was nothing but a *petitio principii.* If, for one reason or another, most items in dreams had to have sexual significance without saying so overtly, of course, lack of veracity on the part of the manifest content has to be introduced. Jung thought that the "censor" was introduced by Freud only in order to make his preconceived idea tenable.

As we now have the chance to imitate a censor that is chronically lacking in its vigilance by waking our subjects after every REM phase and thus making them aware of almost all of their dreams however successfully they might have been suppressed under normal conditions, we now may have the

chance to check the old theory. Supposing the censor theory was correct, such procedure ought to have a terrifying effect on the subject, as he thus would become conscious of so many "facts of life" from all this dream material that he could hardly stomach it. Such an effect, however, has not been shown in the laboratory; thus, we have to say that, from this point of view, the censor theory has not been proved. Maybe my tacit identification of censorship with the usual forgetting of most dreams is wrong and one simply would have to introduce an additional little helpful hypothesis in order to make the censor idea tenable. However, I prefer *Occam's razor** and therefore would rather reduce the *principia explicandi.* But, while we have not succeeded in finding any experimental proof of the censorship, how about the counterargument?

Admittedly the "dreamwork" may already have succeeded in "explaining away" the true nature of our desire when the experimenter artificially interrupts our sleep. Why then should we still lose so many of our dreams while they have already been turned innocent or innocuous enough by the dreamwork put in action by the censor? With regard to this question, REM-deprivation experiments seem to help, since dream inhibition, as is generally accepted, does produce some bad effects. These facts suggest that dreams, by themselves, serve a biological purpose, or more precisely have a homeostatic function as is also generally accepted nowadays. And here I should like to repeat that their periodicity alone almost asks for such an interpretation.

I think that here we are facing the most tantalizing problem modern dream research has so far produced: if dreams have a homeostatic function in themselves, even when they are not remembered, we can safely leave them alone. They are doing their nightly job anyhow and may be even better while unobserved. The folkloristic theory of the goblins safely putting the house in order at night, washing up the dishes, and so forth—as long as they are left unobserved—seems to be the

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* *Entia non sunt multiplicanda praeter necessitatem* (beings ought not to be multiplied except out of necessity).

answer. On the other hand, we are, as analysts, convinced that catching these specters, (i.e. making them conscious and, if possible, analyzing them) has the most beneficial effect on our mental health, which then would be an obvious contradiction.

I have to admit that the work at our own laboratory, that its very origin, followed the working hypothesis that by the Kleitman-Dement technique the analytic work could possibly be considerably speeded up since the analysand could in this way be made conscious of many more of his problems in a much shorter period of time. One of our subjects who spent well over fifty nights in the laboratory, for example, produced seventeen times more dreams during this period than during a period of preexperimental analysis of equal length. He, however, became rather uneasy, a symptom we cannot fully account for as an effect of sleep loss only. And neither was he, of course, analyzed to rock bottom, so that we had to admit that this time-saving device did not work. How are we going to account for this negative effect? Let me offer a tentative explanation which, by the way, will lead us to a more Jungian consideration.

The unconscious part of our system is, of course, not really interrupted by our waking. It is only the conscious part which begins to make more noise so that we can no longer hear the continuous background music of the unconscious which, according to Aristotle, consists of much finer vibrations than those prevailing in the waking state. Only during sleep does it become conceivable to the *koinon aistheterion* (perception of bodily condition) as dreams, the theory of which seems to be a venerable old version of what is nowadays called *internal sensory imput*. In parenthesis this, according to Aristotle, accounts for the diagnostic value of dreams concerning the condition of our body, a problem we will return to before long. Making use of the new technique, we now are able to switch on to this background music X times more frequently in the laboratory than under normal conditions. In this way, we are getting a lot of information which normally would be lost, at least for the time being. I say "for the time being" because I think that exactly here lies the answer to our problem. To Jung, the un-

conscious is a continuum in space-time. Superimposed on it there is the periodic phenomenon of consciousness (i.e. waking). This waking state then is mainly open to bodily condition and external stimuli, but also to some extent to the inner world of the psyche from where it not only receives all kinds of stimuli, but as we now know, periodically and unavoidably, also dreams.

Consciousness is steadily augmented in life by assimilation of more and more knowledge about the outer as well as the inner world, the latter by dream material mainly. Just as learning can only be achieved step by step, none of which can be skipped, so can the unconscious material *only* be assimilated step by step. There must, in this sense, be a kind of hierarchical structure of the unconscious just as there is one in consciousness. (One cannot learn higher mathematics before having understood arithmetic and algebra first.) It may therefore happen sometimes that, through a remembered dream, material from the unconscious is exposed to the conscious mind which is still far from being capable of mentation; the material may still be too strange, too alien, or too "advanced" and will consequently either make a very strange but strong impression or be immediately forgotten, not necessarily because of repression but simply because the conscious system still lacks the necessary concepts to assimilate it properly. Should this hypothesis be confirmed, it would in most cases be superfluous to revert to the theory of the censor.[9]

Now the question is how this Jungian view is to be reconciled with the well-known fact that dreams with high emotional tone are more readily and spontaneously remembered than those with little emotionality—a fact which has been statistically proved in our laboratory. In special cases, this may be so because highly emotional events in dreams simply overwhelm the censor, so that the dreamer emerges higher than "emerging stage I," that is, he wakes up and thereby already makes the connection of dream with consciousness. However, these may be exceptional cases only. It will be difficult to validate the theory since we awaken our subjects after every

single REM period so that all dreams are brought to immediate consciousness independently of their emotionality; this practice will automatically have its effects on their being remembered.

I should like to remind you here of the Jungian concept of *archetypes* and *archetypal images* and to suggest how highly probable it is that, whenever a dream proves to be highly emotional, this is so because it has some archetypal content, for it is well known from clinical experience that archetypal images are always accompanied by strong emotions.

Here I have touched upon another of our original working hypotheses which may or may not be verifiable and about which, so far, we have only met with difficulties. Archetypal dreams are considered most important in Jungian analysis. That they seem to occur more frequently at crucial points of the patient's development or process thus far is an empirical statement only. Much work is needed to verify this methodically which, in my mind, will only be possible by using Calvin Hall's method of *content analysis*. However, clinically the statement can be confirmed. For a striking example I refer you to my little monograph, *Ancient Incubation and Modern Psychotherapy*.[8]

Psychologically speaking, emotions seem to serve the purpose of driving home some truth to which there are some resistances. Emotions also release a certain additional amount of energy. This energy manifests itself, for example, in a kind of motion (e-motion) which alters our state of mind and which can be almost measured, for example, in the degree of deflection of the galvanometer needle. (See Dunbar.[2]) These facts are far from being properly understood, physiologically no less than psychologically. As is well known, emotions also occur in dreams—more specifically in archetypal dreams of a decisive nature. They sometimes seem to have a direct healing quality as can be seen in the case histories of the Asclepieion in Epidaurus (*cf.* my chapter in *The Dream and Human Societies*).[7]

Such a dream was called *enhypnion enarges*, the effective dream.[8] These effects remind us of their reverse, that is, the unpleasant effects of Dement's dream-deprivation experiments.

Suppose we observe a highly emotional dream in the laboratory, what are the corresponding phenomena on the somatic level? And would they help us to understand the homeostatic function of dreams let alone their healing function? As you know, it is easy to show a number of the physical concomitants of emotions in the waking state. You only have to think, for example, of the pneumogram or the galvanic skin response effects which have been known ever since the beginning of our century, or rather since classical antiquity (*cf.* my paper "Psychosomatic Medicine from the Jungian Point of View.")[6] Now it becomes apparent that some of these effects seem not to work in the sleeping stage and, what is more, there are differences of a puzzling nature between these autonomous reactions during REM and NREM periods.

The neurophysiologists will have to look for an answer to this problem, but for us it remains a fact that certain autonomous responses do not occur during sleep. From here I allow myself to make a bold conjecture: Does it not look as if a censor were at work seeing to it that these emotional reactions will not reach the periphery? Maybe it is they who would wake me up if they were perceived at the periphery, so that there is good reason enough to suppress them. By this suggestion, I do not mean to support the rather unlikely theory of Freud that the dream is the guardian of sleep. We should here rather think of the effect of a neurophysiological inhibition. It may, however, be very difficult to measure the immediate effects of dreams on bodily functions. Our instruments still seem to be too blunt or crude, or we may have to look for new transducers allowing us to measure parameters not yet considered. So far, I have the impression that the plethysmograph is particularly sensitive to such changes, to the extent that it has even been used to monitor ESP effects (*cf.* E. Douglas Dean[1]).

It is of particular interest that in the waking state we all show galvanic skin responses to almost any kind of sensory stimulus, whereas there is no response during sleep. We had originally hoped to get such responses during emotional dreams but, so far, we have not seen a single one. I know of no explana-

tion for this phenomenon but cannot help thinking of the big question already mentioned earlier: how the dreams go about putting the house-body in order (homeostasis)? If these emotions experienced in certain dreams do not reach the periphery, how else are they taken care of? Do they remain on an inner level as purely mental experiences? If so, is the emerging stage I the means by which psyche and soma are linked directly where, so to speak, translations of their different "languages" are given to each other or where both speak a common language? I admit this is a lot of speculation, but I also have to confess that I cannot see much progress in this kind of work unless we have the courage to indulge in all kinds of fantasies.

As I mentioned earlier, there can be no escape from the fundamental problem of the psychophysical relation, or if you prefer, the psychosomatic riddle. Epistemologically, it will never help to declare it, in a grandiose manner, a pseudoproblem or to try to evade it by using neologisms like *oneness*, *wholeness*, or whatnot. These terms are only trivia or truisms and are sadly lacking in their capacity to make these transitions from psyche into soma and vice versa better understood. Or has anybody ever explained *how* body chemistry turns into a thought, a concept, or a dream; or how the mind, in psychosomatic medicine, merely using mental operations results in the cure of a bodily symptom or disease?

The inescapability of the psychophysical problem on the one hand and the relevance of modern experimental dream research for the Jungian point of view on the other urge me here to say something about one of Jung's most treasured concepts, though it is practically impossible to make this clear to those who do not know much about it in a limited amount of space. I mean the concept of *synchronicity* (*cf.* C. G. Jung and W. Pauli[4]).

We sometimes observe events which show a most striking coincidence of outer and inner conditions while there is absolutely no causal explanation. For example, it so happens that I think of my friend Dick, who I have not seen, nor heard from, nor thought of in years and who lives 6,000 miles from Zurich; lo and behold, the next minute my telephone rings and who

is at the other end and speaking from a hotel room in Zurich but Dick. Or I dream of something which actually happens next day to me or at least within my visual field, without the slightest possibility of my having foreseen, inferred, or caused it. Causality collapses and still, or maybe therefore, the event strikes me as most meaningful. Such meaningful coincidences are called *synchronistic events* by Jung. You may call me superstitious or unscientific, but I am convinced that these things happen frequently, more frequently than we think or perceive them, and in rare cases we can determine almost irrefutably that these incidents cannot be just coincidental, particularly when the likeness of the two coinciding phenomena is photographic to the minute details. Phenomenologically, it appears in these cases as if an inner fact (my fantasy) or dream has brought about an outer event or vice versa which is causalistically impossible; in other words, it looks as if psyche and physis were interchangeable.

Here I should remind you of what I said a few minutes ago: Could it be that the world of the D-state is the place where the two realities of psyche and soma coincide, in which case this stage would be the *tertium*, the strange elusive something which through the ages has been called the "subtle body"? I am afraid this is still more speculation, and I am sure you want me to come back to harder facts—supposing there are any in this field.

Dr. Rüf, one of my collaborators, thinks that the facts contradict the simple theory of the homeostatic function of dreaming as soon as this theory is thought of as a doing away with toxins accumulated during the waking state: the toxins would have reached their highest level at the maximum of tiredness, just before going to sleep. But REM periods instead of showing their strongest activity right then and there, reach their climax only during the later hours of sleep. The dreams are longer at the end of the night and show more of the characteristics of classical dreams, of the *drame interieur*, and they contain fewer day residues.

Shall we conclude from these data that *earlier* REM periods

and dreams deal more with the manifold disjointed remnants from diurnal mental activities, hence they are kaleidoscopic and closer to hypnagogic visions than to actual dreams? These dreams then would have an aspect of the "junk removal" of computers, as suggested by some engineers. And furthermore these images would then represent visual images of the toxins, that is, the tantalizing little problems of everyday life which account for tensions and consecutive fatigue? Could it then be that in later REM periods the observer turns more to the background which I have been talking about, to truly psychological problems pertaining more strictly to the unconscious mind? Would not what I said earlier concerning the inner process of learning and the hierarchical structure of the unconscious also apply?

More and longer "deafferentation" (i.e. decrease of information and signals with growing length of sleep) will force the mind back on itself and, as it literally almost only consists of images, the information it receives or creates in this way about its own genuinely psychological problems or queries will simply be more images. On this level, they are the "stuff" myths are made on; and myths show us the age-old archetypal way of handling basic psychological problems, so that one might be tempted to assume that this is the way in which dreams can have a beneficial, if not healing, effect by themselves.

You certainly know that according to Jung the real purpose of analysis is the establishment of a dialectic relationship to exactly this very unconscious, a relationship which itself consists of a give-and-take, a feedback, whereby is created what Jung calls the *process of individuation.* But this, of course, reaches far beyond the scope of my present purpose, so I should like to break off at this juncture.

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DISCUSSION

JOSEPH WHEELWRIGHT

THERE IS A process already underway in this country, namely, the pooling of resources between different psychological schools, as well as between physiologically oriented investigators and those primarily interested in dream content. As Doctor Meier has suggested, this is a likely by-product of REM research. The Academy of Psychoanalysis has started the ball rolling by including among its fellows not only neo-Freudian analysts but even a Jungian analyst—a welcome precedent, I think. For twenty years, my pitch has not been either/or but both/and, and I should like to see the word *eclectic* redeemed.

Over a year ago, Doctor Meier showed me his REM laboratory. As we waded hip-deep through smoked-drum tracings and other data, he told me something of the esoteric variables that were being measured. But I was horrified to find how little work had been done on the dream content and its relevance to the life and development of the subjects. Obviously this vacuum is being filled—as the present volume attests.

I was intrigued by Doctor Meier's references to the theory of the censor and the doubts that REM research casts on its validity. I have long envied my Freudian colleagues for being able to evoke this concept; it helps to explain away one's not infrequent inability to understand what a dream means. Although many Freudian concepts are meaningful and indispensable to me, I could not accept this one in the face of occasional dreams that my patients have presented, of incestuous relations with a mother or father, for example. So, instead of regarding dreams as distorted wish-fulfillments, I have found Jung's view more acceptable, namely, that a dream is a larger or smaller representation of how things are in a certain part of the basement (unconscious) at a certain moment. This position means that Jungians do not see dreams as having latent and manifest content. However, it has been my experience, both with myself and my patients, that on reexamining significant dreams from time to time, I have found

new meaning in them. This fact I attribute to a point that Doctor Meier made, namely, the hierarchical nature of the learning process. This step-by-step increase in awareness seems to apply to inner knowledge as well as outer knowledge. Therefore, the more one grows and learns, the more one can perceive in a given situation, concept, or relationship. In this case, it is the relation of the ego to unconscious contents. Parenthetically, it is also possible to examine a dream from, say, a Freudian or Adlerian or Jungian standpoint. Jung did this in a meaningful way in his *Two Essays on Analytical Psychology*.

I cannot leave this section of Doctor Meier's paper without referring to his scholarliness. It is usual for European and English professors to be familiar with Latin and Greek, as well as being historically minded—unlike many of us. His reference to Occam sent me running to my 1911 edition of the *Encyclopaedia Britannica*. There it was: William of Occam, a fourteenth-century English clerical scholar. Among other things, he is remembered for a phrase known as Occam's razor: "Essentia non sunt multiplicanda praeter necessitatem." Partly from my disordered memory and partly from my tattered Latin dictionary, I am happy to be able to translate this dictum. It means: "Essentials are not to be increased except out of necessity." I'm afraid that his two Greek references, written in Greek proved too much for me, though as a good Jungian I have picked up a few stray words. *Enantiodromia* is very popular in Jungian circles. It means the emergence of that side of an ambivalence of which the subject is unconscious. The more intense the conscious position is, the more violent will be the eruption of its opposite. If I were forty years younger, I would probably call it flipping!

Jung's central concept of the collective unconscious is that ontogeny repeats phylogeny psychologically, as it does biologically. This is the primal layer of the unconscious from which all of us emerge as infants, dripping with primordial slime, and it is the world from which myths and rituals derive. The Oedipus myth is crucially important for all of us,

and this is an archetypal pattern, par excellence. Jungians stress other imagoes and motifs. I shall only mention the night sea journey—exemplified by Jonah and the Whale—and the death and rebirth theme—exemplified by Demeter and Persephone. Apparently, the stage-I REM phase produces material from this layer. Its hallmark is that the subject has no personal associations to the characters or events. Incidentally, subjects on LSD trips report experiences and visions that obviously come from the collective unconscious.

I am not surprised that Doctor Meier's hope of finding a shortcut through REM has not been fulfilled. I am leery of shortcuts—not just because I come from Boston and think that the way one knows a good thing is by how much it hurts. It was best expressed by a Jungian colleague in San Francisco, Doctor Elizabeth Osterman. She said that her objection to visiting the collective unconscious through LSD was that it reminded her of a grab bag. One does not know which archetypes one is going to bump into, nor whether the experience will be relevant to where the subject stands in his conscious development. The same objection can be leveled at hypnosis. In fact I believe that this was one of the reasons that Freud and Jung abandoned it.

I would be curious to know to what extent themes recur in REM dreams—no matter which of the four stages they come from. I have found that what needs to be understood will reappear in analysis until the dream meaning is understood. Conversely, we do not have to dream about something we already understand. This principle is important when the dream center uses, for its purposes, what appear to be well-known residua from recent events. In other words, I should also like to know how well REM dreams demonstrate Jung's concept of the compensatory function of the unconscious—implied by the remark about not needing to dream about things already understood.

It will be a great thing if REM research throws light on the mind-body dilemma. Jung used to say that they were different aspects of the same thing.

The subject of synchronicity is too contentious and complicated to go into deeply—as Doctor Meier says. However, he and I felt that we had an example of it in planning his contribution to this volume. In any case, the timing was so felicitous, in two busy and complicated lives, that we saw it as a noncausal, meaningful coincidence—which is what synchronicity is.

I cannot close without a reference to one of Jung's examples of this phenomenon. He got a woman patient who said that she had fled from a Freudian analysis because the analyst kept talking about sex. So she had come to Jung because: "I know you don't believe in sex." Jung said that this was not quite true—that he found it important in all his cases. He only dissented from Freud's insistence that it was always the chief causative factor in neurosis. But the woman paid no attention to his demurral. And after a few sessions, Jung saw that with her it really was the crucial problem. But she simply ignored his attempts at interpretation.

Some weeks later, he was seeing her on the lawn of his Küsnacht house, as was his wont in the summer. He had decided that if she would not explore her sexual problem in this hour, he would terminate treatment. They sat down and she presented him with a dream. It was loaded with sexual material, crying out for interpretation. At this point, a sparrow lit on the grass between them. A moment later a second one arrived. The newcomer surveyed the other bird, mounted it, and triumphantly consummated their meeting. Then they both flew happily away. Jung and his patient looked at each other and burst out laughing. This broke the log jam (forgive the imagery) and the analysis began—focusing on sex.

Chapter 6

An Adlerian View

BERNARD SHULMAN

THE DISCOVERY of rapid eye movements as indicators of dreaming sleep, and the other characteristics of REM states, have forced reevaluation of the traditional theories of dream psychology. Modern dream theory probably begins less than seventy years ago with Freud's *Interpretation of Dreams.* Dream psychology became a popular subject for several decades, and all of the major dissenters from Freud constructed their own theories to explain dream psychology, each explaining in what way his theories matched and differed from those of Freud.

A great part of Freud's early work in psychology, including dream psychology, has always remained acceptable to Adlerians. In a 1936 paper,[2] Adler honored Freud for "laying the foundation of the science of dream interpretation" and described what he considered Freud's valid contributions:

1. The demonstrations that emotional attitudes in the dream point to its actual meaning more than the figurative or verbal elements.*
2. The distinction between manifest and latent content.
3. The fact that dreams employ the same dynamisms used in slips of the tongue, daydreams, and other waking behavior.

Wexberg, an important Adlerian writer in the 1920's, discusses in more detail the ways in which Adlerian dream theory follows Freud: that it accepts the idea that dreams show hidden tendencies and personal conative patterns; that latent con-

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* This is a rather general statement. Some dreams do not manifest emotional attitudes; verbal elements are missing from other dreams and the metaphorical element is sometimes the main key to understanding the dream, as Adler certainly indicates in other writings.

tent indicates the real meaning; that dreams use condensation, displacement, distortion, and representation by opposites; and that some dreams are wish-fulfillment dreams.[15]

Adler, however, disagreed with Freud's notion of the *censor*, which he called "nothing else than the greater distance from reality that prevails in sleep." Adler means by this that the dreamer uses autistic mental processes rather than socially learned and consensual ones.[4] On the other hand, Adler claims that one function of the dream is *self-deception*, a concept certainly very close to Freud's censor.

Although it never seems to have been discussed in the literature, there are at least three points on which the Adlerian theory of dreams would agree with the theories of Carl Jung. The first point is that the dream, like any other psychic phenomenon, must be considered from a final or purposive point of view as well as from a causal view. The second is that symbols do not have a fixed meaning but must be understood within the metaphorical content of the dream. The last is concerned with the future orientation of the dream; thus, "dreams have a prospective function . . . an anticipation of future conscious achievements, something like a preliminary exercise or sketch . . ."[11] All of these issues will be discussed more thoroughly below.

The writings of Adler himself are quite clear on certain aspects of dream theory but are vague and even contradictory on other aspects. This can be partly attributed to the fact that much of his writing was actually hastily composed from lectures and then inadequately translated. Later Adlerians have done a much more precise job of describing Adlerian dream theory and I will draw freely from them.

The Functions of the Dream

Future Orientation

"Individual Psychology regards dreams as originating in unfinished and unsolved problems about which the individual is concerned and which he has been unable to solve during the day . . . . such a conception implies that every dream in some way points to the future."[1]

"A dream is a bridge that connects the problem which confronts the dreamer with his goal of attainment. In this way a dream will often come true because the dreamer will be training for his part during the dream and will be thus preparing for it to come true." [2] (This statement by Adler seems very close to the concept of wish fulfillment, at least in a certain sense).

"The direction of the activity and therefore the anticipatory, prescient function of the dream is always clearly discernible; it foreshadows the preparations developed in connection with the actual difficulties encountered . . . ."[3]

Rehearsal

"Adler regards the immediate [as opposed to long-term] problems as the pivot of the dream . . . it is a graphic rehearsal of the attitudes we shall adopt on waking."[14]

"A dream is often a trial solution . . . ." [15] Thus, one function of the dream is to rehearse for the future activity of the dreamer. Various coping methods are tried out for size and sometimes a choice is made, or at least a solution is discarded.

Self-deception

The dream uses metaphorical expressions. "The dream has a forward aim . . . it puts an edge on the dreamer for the solution of a problem in his own particular way . . . it does this not on the basis of common sense . . . but metaphorically, in comparative pictures, somewhat in the manner of a poet when he wishes to arouse feelings and emotions." * [4]

"The dreamer is engaged in molding attitude and disposition to coming events of life, storing up a certain reserve of feeling and emotion which could not be acquired in the daytime by contact with reality and logical thinking. He thus accumulates a certain irrational force to sustain him in the pursuit of his own goal . . . ." [6]

"It is the purpose of the dream to evoke feelings and emotions that lure the dreamer from the path of common sense." [13]

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* As Albee the dramatist and Dali the painter use "absurd" illogic to achieve an effect.

"The dream's most important purpose is to lead the dreamer away from common-sense . . . . In the dream, therefore, the dreamer commits a self-deception." [4]

In order to understand this concept of *self-deception*, it is important to understand what Adler meant by the term *common sense*. He does not use it to mean "horse sense" or practical wisdom but rather what Sullivan called consensual validation. The dreamer therefore uses a private language and private logic, valid only for himself and not subject to consensual validation.

The concept of self-deception is best explained by Dreikurs: "One cause for this apparent non-sense of the dream is . . . the lack of verbal logic. However . . . this is not the only reason why dreams remain obscure. Even the . . . psychotherapist, who (understands) the dreams of his patients, fails to grasp the meaning of his own dreams. This reluctance to interpret correctly one's own dreams is the consequence of the psychological function of the dream, namely to create certain emotions. All emotions serve the purpose of fortifying attitudes and actions. Their strength lies in the fact that their purpose is not recognized. If one realizes for what purpose one stimulates one's own emotions, . . . if one could admit that all these emotions are self-created for a very definite purpose . . . such admission would deprive the . . . emotion of its powerful drive. For this reason, dreams must remain shrouded in mystery to be effective." [9]

The "Factory of Emotions"

The foregoing material has certainly suggested that the dream purposefully creates an emotional state in the dreamer. Individual Psychology has as an axiom that behavior is organized toward a final goal and that emotions are the *catalysts* of action. The emotions themselves serve as instruments to be used by the "actor" and are evoked by his congnitive tendencies, his thoughts, and perceptions. Thus, the depressed patient will keep himself sad and discouraged by constantly thinking morbid thoughts and finding fault with himself. Other schools of thought consider the depressive's self-blame to be self-

punishment. The Adlerian claims that self-blame is necessary in order to stay depressed.

"Through the picture of the dream a certain emotion is created which then is carried into the new day, regardless of whether the dreamer remembers the dream or not. The dream can be called the "factory of emotions" [Alfred Adler], because that is the function of the dream . . . ." [9]

"The purpose of the dreams must be in the feelings they arouse. The dream is only the means, the instrument, to stir up feelings. The goal of the dream is the feelings it leaves behind." [5]

This concept is uniquely Adlerian and in my opinion represents the most important contribution that Individual Psychology has made to the understanding of the dream. Thus, according to this hypothesis, a nightmare occurs because the dreamer *has some private reason for frightening* himself and so on.

The following example was given me by Rudolf Dreikurs: A patient reported a dream in which he was in jail. He did not recall other dream elements. He did not understand the dream and could not offer associations except to say that he would not like being in jail. Dreikurs asked him if he had done something wrong or illegal or if he contemplated or had contemplated the same. The patient then confessed that he had compiled a fraudulent income tax return, but the next morning had thought better of it and redid the return to remove the fraudulent features and then posted the honest return with his check. He had made this decision the morning after the dream. However, he did not see the connection between the dream and his subsequent behavior until Dreikurs pointed it out to him.

The dream created a mood through a metaphor. It was the complete equivalent of a conscious decision to redo the tax return, but, couched as a metaphor, was much more evocative of emotions than would be rational thinking which tends toward objectivity and dispassion.

It is *not* necessary for the dream to be consciously recalled

for it to do its work of evoking a mood, any more than it is necessary to consciously recall a decision in order for that decision to influence subsequent behavior.

Preservation of sleep

Adlerian writings have said nothing about Freud's statement that the dream serves to preserve sleep. I can vividly remember one morning dreaming that I was getting dressed and awakening to find that I was still in bed undressed. I freely admit that I wished to remain asleep rather than to get up and go to my early morning class. That dream certainly expressed a wish to remain asleep. However, this is not quite what Freud meant by the sleep preserving function of the dream.*

It is my impression that dreams occur during *light* rather than heavy sleep. The physiologists will probably have the final word on this matter.

The Relationship Between Dream and Life Style

The Adlerian literature makes several statements concerning the relationship between dreams and the life style of the dreamer.

"In dreams we produce the pictures which will arouse the emotions we need for our purposes, that is, for solving problems confronting us at the time of the dream, in accordance with the particular style of life which is ours." [2]

". . . They create a frame of mind in accordance with the style of life. The dream . . . selects from a thousand possible images only those that are favorable to its aims . . . in the interests of the style of life." [4]

"The purpose of dreams is to support the style of life against the demands of common sense." [5]

"The style of life is best shown by dreams which are often repeated . . . ." [4]

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* Among some children, the fear of having "bad dreams" can lead to attempts to avoid sleep. At one time in my own childhood I tried to avoid bad dreams by saying a little prayer before I went to sleep. I am happy to report that my method worked and I shall be glad to teach it to anyone who is interested.

The above statements seem to add little to our understanding of the dream per se. All behavior, according to Individual Psychology, may reveal the basic personality tendencies which Adlerians call the *life style;* dreams need not be expected to reveal these more than other aspects of behavior or other mental processes. Furthermore, the life style is a unifying pattern, a personal construct, which governs the direction of behavior and thus produces a selective movement in line with itself, like Sullivan's *self-system*, Allport's *proprium*, Horney's *idealized image*, and Berne's *script*.

Modern Adlerians are much more likely to stress the immediate future for which the dreamer prepares himself, and an analysis of dreams does not lead to an understanding of the life style as does an analysis of the family constellation or of the earliest childhood recollections—two unique diagnostic instruments devised by Adler.

In addition, recurrent dreams sometimes are best understood as attempts to cope with recent traumas (as noted by Freud) and do not necessarily reveal basic tendencies.

However, "The style of life is the master of dreams. It [the dream] will always arouse the feelings we need. We would approach the problems in the same way whether we dreamed or not; but the dream offers a support and justification for the [goals chosen] in the style of life." [5]

Thus, the dream, like any other phenomenal event, can be pressed into the service of the individual's movement toward his intended goal, reinforcing his underlying attitudes and providing emotional support for his decisions.

The Language of the Dream

Adlerians follow Freud in considering that the dream uses mechanisms that are not compatible with most of the realities of everyday life.

"For the solution of an undecided question . . . abstract and infantile comparisons are at hand, . . . frequently suggesting more expressive and more poetical images. For example, an impending decision may be replaced [symbolized] by a school

examination, a strong opponent by an older brother, the idea of victory by a flight to the sky, and a danger by an abyss or fall." [3]

Way compares the dream to a work of art which expresses a whole chain of ideas through a few details. Each dream is a totality, a crystallization into an image and a mood. "Each detail of the dream is symbolic of the whole interrelated background . . . . The dream is composed with fragments of things seen, conversations heard, emotions and sensations already experienced, all the scraps and remnants of perception worked into a kind of 'collage' . . . .* As Freud pointed out, the dream has no pictorial way of rendering logical connections expressed in speech by such words as *and*, *but*, *either-or*, *though*, *because*." [14]

"Both poem and dream depend for their effect on technique." [14] Each detail, says Way, is reckoned as part of the whole structure. Thus, a contradictory dream points to a contradiction in the thoughts or attitudes of the dreamer. A nonsense dream is a way of saying, "This is just a lot of nonsense."

The dream makes extensive use of symbolic imagery. We used to consider that dreaming was merely thinking of a kind that went on while the conscious faculties were inhibited, but recent dream-deprivation studies indicate that dreaming may be something more, something necessary to the well-being of the organism in some manner we do not yet understand. According to Individual Psychology, symbols are contingent upon culture and change with culture (which also contradicts the idea that dreams necessarily reveal the life style). While Freud considered many symbols universal, the Adlerian is more likely to feel that the issues which appear in dreams may be universal (*cf.* Jung's archetypes)—but the symbols are seldom so.[12] There are exceptions to every rule. An example is the tendency of the hungry person to dream of food, an example of a wish-fulfillment dream.

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* *cf.* Freud's statement that the manifest content of the dream often contains the previous day's residue.

There are, however, common symbols which appear in dreams. Thus, wild animals usually refer to the dangers of life; clothes and hair to the self-image of the dreamer; faceless people to the person not known or not understood; traveling dreams to movement through life; crossing a river to making a decision; nudity to a fear of exposure; small animals to children or younger siblings; ice cream to luxuries or "goodies"; being chased to feeling pressed; being heavy-legged and unable to run to feeling inadequate to a task, and so forth.

Many dreams can be classified into various types. Thus nightmares are a dreamer's way of frightening himself about some matter. Triumph dreams (as in a sexual triumph) indicate that the dreamer feels he is accomplishing something. Dreams about a recently deceased relative indicates that the dreamer has not yet buried his dead. There are probably exceptions to all these rules.

In general, the more vivid the dream, the more the dreamer is trying to impress himself (or his therapist). Some dreams come in three acts, perhaps with different symbols recapitulating the same themes, and all acts of the dream must be placed in apposition in order for the message of the dream to be understood.

Dream fragments can best be understood as cross-sections through the dream. A number of fragments can constitute a sketch of the whole dream.

The role of the dreamer, whether he is main actor, peripheral observer, victim, hero, is important in understanding the dream.

When a dreamer "knows" that he is dreaming, it is an indication that he is not willing to let himself go in his private logic completely. Sometimes a dreamer will wake himself up if he does not like the way his dream is going (*cf.* Freud's censor).

Because the Adlerian therapist asks for and interprets dreams, the dreams of people in therapy take on added significance because they become part of the dialogue between patient and therapist, and often have a direct reference to the therapy itself. The first dream, shortly before or after the first

interview, seems always to refer to the therapy. A sudden appearance of dreams in a nondreamer usually points to increased willingness to reveal oneself to himself as well as to the therapist. The cessation of dreams means that the patient has become unwilling to reveal himself further or that he is finished dealing with the problem area concerned with his previous series of dreams. A dream of change may anticipate therapeutic change; a dream of childhood may signify that the dreamer will move backward. Incessant dreams are sometimes used as resistance to therapy, the patient filling up the therapeutic hour with reports of his dreams and leaving the therapist in the dark about the everyday life of the patient.

Relapses can be signaled in dreams: A patient dreamt that he fell off a cliff and drifted slowly to the bottom without hurting himself. He then got to his feet and walked through a door in the side of the cliff. The door closed after him and the dream ended. A week later he became psychotic.

When Do We Dream?

Adler seemed to be of the opinion that the dream is purposefully used to circumvent reality and the rational processes: "We dream only if we are not sure of the solution of our problems, only if reality is pressing in on us even in our sleep and offering us difficulties. This is the task of the dream: to meet the difficulties . . . and to provide a solution." [5]

"If an individual is confronted by a problem which he doesn't wish to solve along the lines of common sense, he can confirm his attitudes by the feelings which are aroused in his dreams." [5]

The dream is "in itself a sign that the dreamer feels inadequate to solve the problems by common sense alone." [2]

Adler even suggests that the absence of dreams indicates an "adjusted" (conflict-free) person. "The more the individual goal agrees with reality, the less a person dreams. Very courageous people dream rarely, for they deal adequately with [problems] in the daytime." [2]

And again, "Dreaming is the adversary of common sense . . . people who do not like to be deluded by their feelings, who

prefer to proceed in a [rational] way, do not dream often . . . ." [5]

Finally, "a metaphorical conception of one's situation is a way of escape from it" (as in the dream).[6]

The above suggests that the nondreamer is somehow more realistic than the dreamer and that the latter somehow lacks "courage." These ideas will be examined later in the critique.

The Clinical Use of the Dream

While Adler and other Adlerian writers made many general remarks about dreams and gave numerous dream examples with interpretation, the writings themselves seem more concerned with the therapist's use of the dream in order to understand the patient. Little has been written to show how the Adlerian therapist actually uses the dream in his relationship with the patient. Exceptions are found in Wexberg: "The task of the psychotherapist will be to interpret [dreams] . . . into the scheme of this personality and so step by step to complete the portrait of the patient's character [in line with the life style].

"The communication of dreams must in general be expressly demanded of the patient . . . . For the purpose of therapy, dream interpretation offers advantages of two kinds: First the patient learns, through the successful and convincing interpretation of his dreams, that there really are mental processes which [seem] to be withdrawn from his willing and thinking . . . which . . . on closer consideration reveal themselves as valid portions of his responsible actively thinking and acting personality . . . . Secondly, the *denouement* of the dream shows . . . with great clearness in what sense the patient is inclined to solve his actual problems.

"In the interpretation of all dreams . . . one must never go further than is compatible with the state of the patient's knowledge [ability to understand dynamics] at the time . . . in a few weeks . . . in the interpretation of his ideas and dreams, the patient shall be able almost to dispense with the physician's help."[16]

"The analysis of dreams," says Dreikurs, "is indispensable in

modern psychotherapy . . . . The need to use dreams . . . emanates from their usefulness to indicate problems which otherwise might not come to the surface . . . . Dreams provide the most dramatic experience for patient and therapist alike when they reveal the changes which occur in the patient during therapy. One patient had . . . [all short] dreams and without any action. He did in his dreams what he did in life; he . . . figured *out* the best way of a problem . . . . When his dreams started to move and become active, he started to move in his life, too."[9]

Walter Bonime's book, *The Clinical Use of Dreams*[7] is perhaps the most useful volume on dreams that has been published in many decades. While reading the book from the Adlerian point of view, I was both pleased and surprised that I could find nothing with which an Adlerian could disagree. Indeed, I wish I had written the book. Ullman's Foreword to the book pointed out the similarity of ideas in Adler and Bonime, and some of Bonime's formulations found a startling reverberation in me. For example, Bonime has divided the elements of the dream into (1) action, (2) individual, (3) surroundings, and (4) feelings. I had for myself formulated the elements of the dream from the point of view of a dramatic creation. The particular four elements I had used were (1) narrative, (2) cast, (3) setting, and (4) mood. Throughout the book, one can find statements that fit the view points of Adlerians. I certainly do not wish to detract from Dr. Bonime's accomplishment, nor do I claim primacy for the Adlerians. I suspect, however, that his book is becoming a text in our training centers.

The Adlerian therapist, thus, asks for dreams from the patient, uses them to understand and define problem areas, to predict the near future direction of movement of the patient, to fill out his understanding of the patient's characteristic lines of movement (the life style), to alert himself to the patient's movement in the therapeutic relationship, to show the patient these aspects of himself, and to teach the patient to observe and understand his own dynamics.

My colleagues and I have also encouraged dreaming when

therapy has bogged down in stalemate or has run out of fresh material. We then suggest to the patient that he recall his dreams. If he says he cannot, we ask him to follow our instructions: for three weeks he is to keep paper and pencil by his bedside and upon awakening to write down any fragments he can recall before he even thinks about anything else. If the patient is cooperative, he can always report dreams by the end of three weeks. When we consider a patient "closed up" and unable to reveal himself either to himself or the therapist, we will also encourage dreaming for the purpose of promoting a more introspective and self-examining attitude. The successful interpretation of a dream may be a means of "getting through" to the patient where other methods have failed. Indeed, the patient may be willing to reveal more intimacies in his dreams than in a face-to-face confrontation with the therapist; the reporting of a dream is usually less threatening than a direct admission.

One patient dreamed that he was a dinner guest. While the host sat eating at the head of the table, the dreamer surreptitiously fondled the hostess who responded warmly. In the dream, he felt ashamed of deceiving his host while a guest at his table. In association, he then offered a fact about his sex life which he had previously been ashamed to admit to me, namely, that he was having a sexual affair with his landlady while having a friendship with her husband.

Patients' dreams also provide grist for the mill in group therapy. One group technique can be called "You tell me your dream and I'll tell you mine." As implied by the name, the telling and interpreting of dreams becomes a part of the group activity. Another useful technique is the psychodramatic re-enactment of the dream in the group session. I learned a special variation of this from a patient of Dr. Frederick Perls, the Gestalt therapist. The patient acts out every role in his dream; thus, if he dreams of a car, he acts out the role of "car" and associates to the role he is acting.

One of my colleagues, R. Postel, uses dreams in a particular way with sociopathic patients. He instructs the patient that

they will discuss only his dreams and nothing else during the therapy session. If the patient has no dreams, there will be no session. He claims that this promotes a quicker and better rapport with this kind of patient than do the more usual techniques.

One other point needs mention. Patients may offer many dreams, and it is doubtful that detailed association is required or desirable in all cases. Furthermore, some dream meanings are very easily made evident. In these cases, the therapist may content himself with only interpreting the "headlines" of the dream.[1] On the other hand, a patient can use dreams defensively. As previously mentioned, incessant reporting of dreams may lead the therapist away from important therapeutic issues. A patient once became annoyed with what he called my "hot shot" interpretations and brought several long complicated dreams, saying, "O.K., lets see how good a job you can do with *these* dreams." I guessed his intention and confronted him with it, and received a big recognition smile in return. Another patient would bring up dreams in order to change the subject whenever the discussion became uncomfortable for her. At these times, I would refuse to be sidetracked into an examination of the dream.

Generally, Adlerians decline to interpret isolated dreams when they do not know the dreamer or his life situation. The interpretation of dreams as a parlor exercise has thus never found favor among them.

A Critique of Some Adlerian Statements About the Dream

This discussion has reviewed the Adlerian literature* and has included additional ideas from my colleagues and myself. The most recent reference in this review is to a book written in 1950. It is thus seventeen years since Adlerians have written

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* The only major Adlerian work on the dream not reviewed in this chapter is also the only full-length book on the subject by Brachfeld, F.O.: *Come Interpretare i Sogni.* Milan, Garzanti, 1951. It is available in Spanish but not in English. Unfortunately, my Italian is limited, but I have been told that this work summarizes the usual Adlerian ideas.

seriously about dreams, and many of the statements are already half a century old and may display aged psychological language or even careless statements. For example:

"Those with a good adaptation to life dream rarely . . . since they solve their problems adequately during the day."** [14] Modern Adlerians cannot accept this statement. It is not supported conceptually by Adlerian theory or by empirical evidence. Today we should be inclined to agree with Fromm who considers dreaming as part of the "forgotten language" in a rationalistic and mechanistic age.[10] It is probable that this idea grew out of the fact that vivid dreams are often found in the anxious and troubled person. We are now of the opinion that any person who has an active fantasy life may recall dreams frequently and freely and that all people dream every night, whether they remember or not.

"As a rule, people who are courageous seldom dream because they use the daytime for working out their problems but, in everyone's life, situations may arise which for a time remain insoluble and as a consequence give rise to the formation of dreams."[1]

Today, we would agree that conflict situuations probably increase dreaming; because, after all, it is one function of the dream to solve problems, or at least to rehearse possible solutions. However, to say that courageous people dream less is to make an unfounded statement. Even worse, we recognize that the individual who reports, "I never dream," is often complacent and full of blind spots, exerting rigid control over his thoughts and feelings. Therefore, we would be in danger of confounding courage with smugness and rigidity. REM studies, of course have rather firmly established that everyone dreams and apparently that dreaming is a normal and necessary function.

Adler says, "the unintelligibility of the dream is not a matter of choice, but a necessity." [4] The purposes of the dream are

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** Way, the author of this statement, points out that F. Plewa, another Adlerian, disagrees with it.

achieved not by "reason and judgment" but by "emotion and mood."[2] "A metaphorical conception of one's situation is a way of escape from it."[6]

Actually, not all dreams are unintelligible. Some are quite easily understood. Furthermore, the juxtaposition of "reason and judgement" versus "emotion and mood" smacks too much of the Apollonian *versus* Dionysian and implies that emotions exclude reason or disagree with it. It is rather that the dream achieves an effect like the dramatist or the artist. The message sent by the dream may be quite subject to consensual validation, and all of the metaphors and artistic techniques may be quite recognizable to the dreamer. The dream is also a legitimate way of experiencing life.

Also, if one really wants to deceive oneself, rational thinking can be used just as effectively as dreaming. It seems, therefore, more appropriate to say that *some* dreams perform their intended function better if they are unintelligible to the dreamer (i.e. when a person does not wish to admit his real motives to himself). There is no reason to elevate rational conscious thinking to such a high plane at the expense of metaphorical thinking.

Adler is reported to have said that he stopped dreaming* because he became so well able to interpret his dreams that they could not perform their function any longer.[13] Perhaps Adler was convinced that it was the purpose of the dream to deceive, and therefore, he chose to avoid recalling any more dreams.

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* One should say he stopped *recalling* his dreams. In defense of Adler, I can recall a repetitive dream of my own which stopped completely when I understood its function. I used to dream from time to time that one of my parents was sick or dead. I would awake worried and call or write immediately (they lived in another city). I eventually realized that the dream occurred only when I had neglected to call or write them for several weeks and that the purpose of the dream was to induce me to do my filial duty. With this realization, the dreams ended. (My psychoanalytic colleagues may say the dream showed a death wish, but without denying that I found my filial duties onerous I prefer my own interpretation. It was the obligation I wanted to kill, not the person.)

Wexberg states, "the dream is a form of preparation for the future. Dreams are . . . better adapted than waking thoughts to the task of preparing emotional attitudes."[15] This statement ignores what every therapist knows: that selective perception, selective memory, rationalization, neurotic symptoms, and many other mental operations are well adapted to evoking emotional attitudes. Dreams have no monopoly on preparing a person for choosing a course of action in life.

"Short dreams" says Adler, "indicate that the present problems are such that the dreamer desires to find a 'short cut.'"[6] In a later publication, he says that short dreams "show that a question has been answered concisely and decided upon quickly."[4]

The second statement seems logical, the first seems to be rather extravagant. It may be true of *some* short dreams (see the above example by Dreikurs), but it is hardly likely to be true of all of them.

Some Additional Formulations

Adlerian theory discusses the dream from the point of view of its expressive nature, its purposive nature, and its representational nature or symbology. Not enough attention has been paid in the literature to the therapeutic uses of the dream. The functions of the dream have been described as rehearsing solutions for solving problems, creating an emotional climate which will lead to the course of action chosen (consciously or otherwise) by the dreamer and operating to overcome conscious hesitation or reluctance to move in the chosen direction. Sometimes, one can discern in the dream, elements of the dreamer's style of life. Some dreams are for wish fulfillment; some are perhaps intended to preserve sleep. The dream is usually much more concerned with the immediate future, but some dreams point to long-term trends. This is especially true of childhood dreams which are recalled in adult life. The great majority of dreams can be seen as containing a message to the self. In dreams during therapy the patient may be more interested in sending a message to the therapist.

No doubt some dreams can speak to both patient and therapist at the same time. When I was in the Army, a bedraggled basic trainee was sent to me because of neurasthenic complaints and an inability to fit into his platoon. He was a college graduate from New York City and felt intellectually quite superior to his platoon mates who were country boys from the Carolinas. His attitude toward them was timid and sneering, and he had not endeared himself to them. I made some interpretations to him in the first interview, to which he responded with surprise that I was so sure I knew him so well. He brought a dream to the second interview.

He was watching a large cylindrical object mounted on a flat carriage and rolling down Fifth Avenue in Manhattan. At intervals, one edge of the cylinder would arise and point skyward; then it would descend and lie level again. Some kind of hydraulic machinery was involved. He was impressed at first, then decided it was nothing special.

He admitted that he had also been impressed by some of my interpretations of the first interview. I established that he mistakenly assumed I came from New York (since he considered me intelligent he jumped to the conclusion that I must be a New Yorker).

I did not quite know how to take the dream. He did not make any associations, but I made some of my own. The dream seemed partly complimentary to me and partly antagonistic. I felt that I was being called "a big prick on wheels from New York who wasn't anything special after all" and my subsequent relationship with this patient bore out that it was his intention to show that he was intellectually superior to me just as he was to all the other soldiers in the training camp.

Adlerians have neglected two items which I myself feel are proper functions of dreams. One is that the dream, which is a message to the self, is often a *self-clarification* for the dreamer, used by him to clarify for himself his own inner feelings so that he can decide where he stands.

One young man was on the verge of falling in love with a girl when she suddenly began to prefer the company of another

man. The young man's past tendency in such situations had been to make a graceful exit from the scene. He was in doubt about the depth of his own feeling for the girl and his pride was hurt. He dreamed that he was in a courtroom where the girl was on trial for witchcraft and that he was acting as prosecutor and angrily accusing her. In the dream, he grew more angry and struck her. At this point he awoke. He reviewed the dream for himself and decided that his feeling of affection for her must be genuine or he would not have been so angry, nor would he have seen her as a witch. He then decided to pursue his relationship with her and eventually persuaded her to marry him.

The second item is that the dream falls into a class of mental phenomena which include fantasy and reverie. It is my opinion that some nightdreams have the same purpose as some daydreams; namely, to provide some entertainment for oneself, and I suspect that dreams are not as involuntary as Dr. Ullman seems to say. I can recall, as a small child, how curious and fascinating I found my own dreams and how I looked forward to having them. Dreaming seemed so much more pleasant than spending the whole night doing nothing.

REM Studies and Adlerian Theory

There is no doubt that all psychological theories of dreaming must now take into account the findings of the REM researchers. Dreaming now seems to have a physiologic function and dream deprivation to produce specific and recognizable effects. Early assumptions that the hallucination was the equivalent of a waking dream have received some support. The nonrecall of dreams can now be approached with more confidence by the psychologists as *their* problem, since REM studies seem to establish that all men ordinarily dream. Adlerians would suspect that dreaming has a necessary psychological function rather than being either simply a physiological one, or merely being a by-product of some rhythmic biological process. All human activity, for Adlerians, is arranged according to an overall organismic system principle which they call the

life style. All recurring phenomena such as dreaming, memory, and perception are integrated into the overall system.

Dreams may have an excretory function but, as Dr. Bonime says, dreams show selectivity—are themselves *creations*, are messages. From the psychological point of view, the excretory function seems less important; the other functions become crucial and *determining*—especially determining the intensity, mood, theme, symbols, and recollection of the dream. As Dr. Whitman and his collaborators point out, the psychology of dreams must not be confused with the biology of dreaming.[17]

One new area of dream theory must be explored: the instinctive nature of the dream. Dr. Whitman and his collaborators have already pointed out that the REM studies evoke anew the whole question of instinctive processes in man.[17] It is certainly true that the newer developments in psychoanalysis have tended to neglect instinct theory and that neo-Freudian theories have, like Adler, focused on interpersonal processes. No doubt the Adlerians deserve a little credit for making Freudian instinct theory unpopular. However, Adlerians have never denied the existence of instincts or their basic importance. They have objected to psychoanalytic instinct theories which neglected social aspects of man's nature and his own creative power to order and modify his instincts, and they have objected strenuously to the use of psychoanalytic instinct theory to explain the functional psychiatric disorders. It is the overall Adlerian *view of man* that is so different from the orthodox psychoanalytic view.

Nevertheless, the newly discovered physiologic aspects of dreaming—its rhythmic nature, the consequences of disruption of the dreaming—all point to a coming revival in the study of man's instincts. Adlerians will watch this development with great interest. We have our own instinct theory, although we do not call it that. The *life style*, the *law of compensation*, *gemeinschaftagefühl*, and many other concepts are part of that theory of instincts. However, I expect that the newer developments will follow the lead of the European ethologists rather than the psychoanalysts. In some ways, what we already

Of course, Dr. Shulman is right that the dream is not unique in the use of either emotions or self-deception. But Adler never claimed this to be unique for dreams; on the contrary, he stressed the unity of the personality in which *all* psychic phenomena must be found working along the same line and toward the same goal in waking and sleeping.

I completely agree with Dr. Shulman when he points to the necessity of revising Adler's statements about "nondreaming." I, myself, have taught for over twenty-five years now that everybody who sleeps dreams every night. I even consider it likely that everybody dreams all night long but becomes aware only of certain parts of his dreams. To more advanced students, I have, however, sometimes added that possibly nobody ever dreams a dream, and that the reported dream is really an interpretation by the dreamer of some dark and vague feelings he has in his sleep, not understandable to the dreamer, and creating often a need to express and interpret these feelings, by giving them visual, intellectual, social, artistic, or other metaphorical forms.

I heartily support Dr. Shulman's statements about Dr. Bonime's book. In my review of this book in the *Journal of Individual Psychology*, I also called it the most important contribution in this area since Freud's original one, and pointed to the similarity between Bonime's and Adler's views.

I must disagree with Dr. Shulman about the two items which he feels are proper functions of the dream but which were omitted by Adler. In the first dream cited, "self-clarification," in my opinion, came not *in* the dream, but through the analysis of the dream by Dr. Shulman, as a result of previous analytic dream interpretations and therapy, where the irrational nature of the dreamer's defensive hostility against that girl became obvious to him. As to the second item, "self-entertainment" as a purpose of the dream, I would want to know what kind of dream was found to be entertaining to Dr. Shulman as a child and *why* he found it entertaining? It is more than guessing when I venture to say that the daydreams as well as the nightdreams in his childhood provided him with feelings of superiority and

fulfillment, and supported his style of life—all of which Adler stressed very much as the purpose of the dream.

Now, as to the influence of the monumental REM-research discoveries on Adlerian dream theory: The psychosomatic unity of the personality has always been fundamental in Adlerian theory, which began, after all, with the theory of organ inferiority. As I wrote in a paper on depression some years ago, Adlerians expect biochemical and physiologic changes in any neurosis or psychosis, and organic and psychological events in an individual always influence, modify, and even generate one another. The principle of a multiplicity of causes, all interrelated and influencing one another must be considered basic here as in any other area.

The detoxification theory by Dement might therefore appear readily acceptable to Adlerians as a hypothesis regarding REM sleep; as to REM dreams, it could easily be hypothesized that the strong internal stimuli operative during REM sleep and proved by the other REM sleep symptoms might cause the sleeper to have increased dream activity. The intensity of the stimuli themselves may cause more exclusive concentration of attention on these stimuli, and the concomitant withdrawal of attention from all other areas may well aid in bringing about such symptoms as the abolition of tonic muscle response or suppression of galvanic skin response. I have not, so far, come across a persuasive hypothesis about penile erection or the interdependence between NREM periods and REM periods.

As regards the instincts that Dr. Shulman mentioned, some Adlerians have always held that consciousness itself, including that part of it of which man is not aware, the unconscious part, is an instinct modified by the imposition of social relations on the instinct. Dreams therefore, would derive from that modified instinct.

Regarding form and content of the dream, however, my feelings are best expressed by Whitman, Kramer, Ornstein, and Baldridge when they paraphrase the statement of Kety about memory, namely, that we may someday have a biochemistry of dreaming, but not of dreams.

Chapter 7

An Existentialist View

HEINZ E. LEHMANN

CENTURIES ago, dreams were believed to have a theistic or demoniacal origin and to be inspired by God or inflicted by some evil supernatural power. Later man began to consider dreams as psychological random events according to a German proverb, "*Träume sind Schäume*"—dreams are frothy bubbles. With the development of experimental psychology, the psychophysical nature of dreams was stressed and the dreams were thought to be poorly coordinated responses to accidental physical stimuli that impinged upon the dreamer, either from his external or from his internal environment.

Freud made a revolutionary breakthrough with his *The Interpretation of Dreams*.[1] This provided, for the first time, an elegant and highly consistent system for explaining dreams. Freud thought the dream to be an expediency measure of the human psyche, providing gratification of powerful wishes and impulses and also defending the dreamer against any threat entailed by such wish fulfillment. Jung attributed to the dream the prospective function of revealing and admonishing as well as helping the dreamer to advance closer toward the actualization of his potential.[2]

Subjective Dream Interpretation

Along with the development of these major theoretical and systematic approaches to dream interpretation, there also has been a long historical tradition for dream interpretation on an entirely subjective and unsystematic level. Hippocrates insisted that dream images—no matter what or whom they concerned—always referred to the dreamer's own self. Novalis, the romantic poet, wrote that the dream teaches us how easily our soul is capable of penetrating all objects and transforming

itself into them. Nietzsche, who is widely considered to be one of the fathers of existential philosophy, was convinced that a dream was nothing but a comedy in which the dreamer is the author, the actor, and the audience all in one.

Herbert Silberer, in the early part of this century, postulated that dreams were symbolic or metaphorical representations of the dreamer's endopsychic state. He described what he called *functional dream phenomena* and applied this term to those dreams which were merely images of the present state of the psyche of the dreamer.[3] He called them functional because the content of these dreams was quite incidental and simply served to reflect the dreamer's physical and psychological condition at the moment of the dream. W. Stekel[4] and A. Maeder[5] also were impressed with the dream's function of portraying the dreamer's self in a symbolic manner.

M. Friedemann has recently described a category of dreams which he calls representative and typical dreams. This type of dream has similar imagery and equivalent meaning even when dreamed by different persons. Friedemann believes that the whole dream or a major part of it—not just isolated symbols within the dream—have this equivalence of imagery and meaning. Typical dreams refer to universal human situations and "are conceived as immediate and physiognomic phenomenological data [which] have to be understood for their existential meaning rather than their objective character."[6]

Methodology in Existential Psychiatry

In existential psychiatry, theoretical explanations based on the concept of *psychic determinism* are regarded as possibly correct but nevertheless irrelevant to the psychiatric understanding of individual human problems. This attitude could be compared to that of the psychiatrist who regards the relative distribution of schizophrenic populations in different urban sectors as irrelevant when he is clinically engaged with an individual schizophrenic patient.

Existential analysis, whether philosophical or psychiatric, uses primarily the phenomenological method. This method

was introduced into philosophy by Husserl toward the end of the last century as a countermove to the runaway growth of psychological reductionism which, at that time, had started to "explain" even the laws of logic in terms of psychology and natural science.[7]

Husserl's phenomenological method was a radical return to the phenomena as they present themselves. This is achieved by eliminating—or, as Husserl calls it, "bracketing out"—all preconceived notions, attitudes, and theories. It involves a naive, immediate, and intense experiencing of phenomena as they occur. This bracketing out, however, proved not at all easy for Western man. Just as the technique of free association has to be learned and practiced because modern man's ordinary associative processes are restricted by many inhibitions of rationality and relevance, narcissistic self-esteem and moral taboos, it requires a special mental effort to be so "uncivilized" as to consider a phenomenon outside the cultural corrals of the subject-object-split, of Newton's laws of motion, the laws of thermodynamics, the principles of relativity and indeterminacy, and—in the realm of the psyche—of determinism. Even the scientifically illiterate person in our cultural sphere of influence applies those principles implicitly at all times and naively prestructures all his perceptions in these terms because that is how things "really" are.

However, the only realities for a phenomenologist are (1) the full immediacy of an experience and (2) the eminent evidence of a phenomenon—not its "explanation." A slip of the tongue is a distorted message, not a breakthrough of repressed impulses. A patient's rapport with his therapist is a profound human relationship, not a transference manifestation. A dream is a fully experienced way of living, not a disguised representation of censored and repressed drives and wishes.

Dreaming Versus Waking

The existential approach to the dream is a phenomenological one. The dream is accepted as a mode of existing which expresses, in a pure and utterly undisguised manner, the dreamer's

mode of being-in-the-world. This way of existing is not induced by any external agents and it does not have any special function. To the existential psychiatrist, dreaming is as autonomous a way of existing as is the waking life. The dream is not a disguise for secret wishes of the waking life, nor is it an inferior or more primitive and vague expression through imagery of transitory, physical, and psychological states. Rather, it is a uniquely open, intense, and important authentic experience, and it must be understood and interpreted by the therapist without the "scientific" prejudices which may be present in his waking state.

Actually, existential psychiatrists argue, the Freudian technique of dream interpretation may often decrease the richness of the lived experience of a dream and may increase the distance between the dreamer and his dream. As Frederick Weiss has said, the dream-interpreting psychoanalyst may become a "killer of dreams."[8] On the other hand, the immediate, experiential mode of dream expression which the existential psychiatrist presupposes may—just through its humaneness and openness—enhance the possibility for empathy in the therapist and make possible a therapeutic encounter through its transcending of explicit and articulate conceptualization.

To the existentialist, human existence is regarded as a continuum of experience, as is the expression of human existence, and also as is the understanding of the meaning of this expression. The continuum includes both the waking and dreaming life and gives no special priorities to one or the other. It is true that waking life happens to be a mode of existence which is much better suited for communication with others because the language of the waking life deals with general symbols instead of individual ones as in the dream. Waking life also happens to have much greater survival value because it enables us to control our environment, while in the dream we are almost completely ineffective. However, scientific man is not allowed to argue that the function of our waking life activity or secondary thought processes is to help man survive. Such teleological explanations have been superseded by the principle

of natural selection. Seen in this perspective, then, there is no more need to explain—or elevate—the waking life than there is to explain—or deflate—the importance of dream life.

Straus disagrees with Descartes' position—later also held by Schopenhauer—that there is no essential difference between our dreaming and waking except for the orderly structure and the connectedness of our perceptions when we are awake. This orderly connectedness, says Descartes, allows us to distinguish the waking state from the dream state. For Straus, on the other hand, dreaming has certain intrinsic failings that distinguish it from the waking state. In dreaming, for instance, there is a lack of differentiation which expresses itself in the almost universal "condensation" of the dream work, in psychoanalytic terminology. There also are the deficiencies of sleep itself, namely, the inactivation of the voluntary motor apparatus, the absence of communication with other persons, the poorly sustained personal identity, and the break in historical continuity.

Straus points out that when we are awake we distinguish between waking and dreaming, but we do not make this distinction while we are dreaming. He also stresses that we can never actually reproduce a dream with complete fidelity, for "just as the form and content of our waking life is distorted in dreams, so dreams which are brought to the waking light of day change and disintegrate like so many other things that are excavated."[9]

However, the dreamer's lack of spatial, temporal, and logical differentiation which, Straus says, render the dreamer "poorer in potentialities" may also be seen in an opposite light if we regard the condensed but free dream symbols as being actually richer than the rigidly ordered elements of our waking existence with its uniform closed structure from which we cannot escape.

Boss Versus Freud

The most comprehensive and most systematic discussion of the existential viewpoint in the psychiatric understanding of dreams has been given by Medard Boss in his book *The Dream*

and its Meaning.[10] This book not only clarifies the methodological standpoint of the existential psychiatrist in general (especially with regard to dreams), it also contrasts the existential approach to the dream with that of other psychodynamic schools.

Boss found, among the dreams brought to him by his patients, some that were surprisingly similar in almost every detail to dreams which Freud has discussed in his own publications; Boss then compared his existential understanding of his patients' dreams with the corresponding interpretation which Freud had given for the dreams of his patients. Here is an example[11]: Freud describes a dream in which the dreamer saw his brother squeezed into a cupboard. Freud interprets this dream as the expression of the dreamer's unconscious wish that the brother should restrict himself and become less expansive in his way of life. Boss had a patient who also dreamed that he saw his brother squeezed into a drawer of a cupboard. The dreamer, himself, was a narrow-minded, pedantic civil servant, and he had had no contact with his brother, an outgoing artist who knew how to enjoy life, for almost thirty years.

Boss considers three possible ways of understanding the dream: on the objective level, on the subjective level, and on the phenomenological level. The Freudian interpretation is on the objective level: the brother is seen as an external object unto which the dreamer's wish is projected. The dream seems to say "I wish my brother would be boxed-in." The Jungian interpretation is on the subjective level and stresses the teleological rather than the merely causal factors. While for Freud the dream is entirely the cause-effect result of repressed impulses and wishes, for Jung it has a prospective and guiding function as well. A Jungian analyst might, therefore, interpret the dream as a helpful demonstration of the loss of the dreamer's own outgoing and productive part of his self. In this interpretation the dream seems to say: "See what has happened to that part of you that could be just as happy as your brother is. You squeezed it into a drawer and haven't let it develop. Free it before it is too late."

Boss accepts the possibility that either interpretation, or both, might be correct. However, he also points out that for both interpretations on the objective, causal and on the subjective, teleological level there is no factual evidence for their validity. The theories underlying these interpretations—Freudian as well as Jungian—are consistent and even plausible, but they are, nevertheless, theories. The phenomenological understanding of this dream would view the brother's predicament in the narrow box as *the only possible way in which the dreamer can relate and refer to anything in the world*—in a squeezed, shut-in and narrow manner—because this is the way in which the dreamer exists in this world. His dream is simply a way of expressing his narrow-minded, waking life existence.

To make his point that the dreamer can only dream—that is, relate to the world dreamingly—in the way in which he relates to the world in his waking life, Boss refers to one of his patients,[12] an engineer who for the first six months of therapy could only dream of cars, planes, and cyclotrons; then for the next four months only of plants; then 105 times during the following six months exclusively of insects. This was followed by half a year with many dreams of toads, frogs, and snakes. Finally, there appeared a mouse in his dreams, then a rabbit, then pigs, and eventually, horses and lions. The first human form in his dreams was the body of a woman seen through a layer of ice in a lake. Six months later he dreamed of a woman with whom he danced at a peasant's wedding and with whom he fell in love. The patient's impotence had been cured already when he had dared to meet horses and lions in his dreams.

Boss is unconvinced of Freud's stereotyped interpretation of dream symbols, most of which are postulated to be disguises for sexual organs or activities. Boss even wonders (as Silberer and Jung had before him) whether sexual activity is, according to Freud, likely to be disguised in a variety of symbolic forms, or whether it may be instead, itself simply a symbol for the intense desire to come closer to another person on a non-sexual level.

In 1912, Schrötter had performed some experiments which Freud considered to be definite proof of the validity of the censoring, disguising, and symbolizing aspects of dream work. Schrötter had hypnotized a number of subjects and under hypnosis had instructed them to dream of crude sexual activities. In one instance a female subject was instructed to dream of homosexual relations with a woman friend. She dreamed of seeing her friend with a suitcase marked "Only for Ladies." This was taken as solid proof that large, hollow objects carried by a person—like a suitcase—symbolized the female genital organ.

Boss performed similar experiments with five women who were asked in hypnosis to dream about a male acquaintance who was in love with them and was approaching them nude, and obviously intending to have sexual intercourse with them.[13] Three of his subjects, who were mature women without neurotic inhibitions, dreamed the dream much as it had been suggested to them reported it cheerfully, adding that they had enjoyed it. However, the remaining two women, who were highly anxious, severely neurotic spinsters in their late forties, did not dream exactly as they had been instructed. One of them, for instance, dreamed of an unknown man in a soldier's uniform who was practicing shooting from a pistol. This frightened her so much that she awakened.

Boss does not accept the Freudian interpretation that the woman dreamed of an unknown man instead of one of her acquaintances, dressed in a uniform instead of nude, in order to defend herself against the morally intolerable situation of being in the presence of a man of her acquaintance in a state of undress. Nor does Boss accept the interpretation that the pistol was an "obvious" disguise for the penis. Instead, he points out that this elderly spinster was quite incapable of experiencing any kind of a positive love relationship with a man. Approaching something that was as strange and unintelligible to her as a physical relationship with a man would be expected to produce tremendous anxiety in her; this anxiety might well express itself in a childish and dramatic manner.

It should be added that this woman had been afraid of soldiers as a child during the military occupation of her village; at that time, she had always clung to her mother when she was frightened by the loud and rough soldiers and by their shooting. Boss thinks that this woman turned the suggested dream into an image of one of the most powerful anxiety situations she had ever experienced in her overprotected life. In her dreaming existence, she had available only a very restricted repertoire of actually lived, intense anxiety. One might speculate that she might have had an identical dream had she been asked to dream not of a sexual experience but of making a parachute jump or a scuba dive alone.

For the existential psychiatrist, the dream work in the Freudian sense is acknowledged only as a secondary dream characteristic that is, indeed frequently operating. But both the dream work, with its condensation, displacement, and symbolization, and also the theoretical concept of the dream as a wish-fulfilling compromise to protect the sleeper against overwhelming upsurges of anxiety are considered to be unnecessary theoretical concepts which neither explain nor describe the basic characteristics of dreaming.

Neither does existential psychiatry consider Jung's archetypes or his concept of the collective unconscious as necessary for the understanding of the nature of dreams. Although Jung's interpretation of dreams on the subjective level (i.e. the dream as a personification of psychic functions and personal characteristics)—as well as his conception of the constructive, prospective, and guiding function of the dream—is closer to the existential views of dreaming than Freud's causal and mainly object-directed dream interpretation, Jung's ideas are, nevertheless, criticized by the existentialists because they contain theoretical archetypes.

Yet, Boss believes that Freud was an existentialist at heart but was unable to acknowledge this intellectually. He repeatedly refers to Freud's "secretly sharing" existential insights and also writes of Freud's "tacitly understanding" the existential approach.[14] And the existential psychiatrist uses all the

techniques of the psychoanalyst to understand the existential meaning of his patient's dreams. If he sometimes encounters patients who have so great a need to gloss over the existential issues that they are not capable of reaching an authentic mode of existence, the psychiatrist may well decide to confine his interpretation to the intellectual, psychoanalytic cause-effect level while still retaining the existential understanding of the dream for his own benefit.

The Meaning of Dreams: Secret Code or Dream Language?

The existential meaning of a dream may not always be grasped immediately. Understanding it often requires considerable interpretive efforts and at times the dream may even remain quite unintelligible. But this does not mean that the dream content is a secret code of carefully guarded hidden wishes and impulses. Instead, the problem may be that the dream language is unfamiliar to the dreamer and to others who try to understand his dream—just as the hieroglyphs were unintelligible to man until the Rosetta stone containing the key to a long-forgotten language was found.

Aside from the problem of not understanding the "forgotten," dream language, the psychiatrist also may not understand the patient's nonverbal expression of his life style. We have to be careful not to confuse the nonverbal character of images, gestures, facial expressions, and life styles with symbolic disguises. A sneer, for instance, is not a symbol for a contemptuous aggressive attitude; it expresses such an attitude directly and often with greater clarity than verbal language could express it.

Clinical Considerations and Examples

Existential literature does not offer a unanimous answer to whether or not all dreams can be interpreted by the existential method or whether certain dreams do not lend themselves to it. Apparently some dreams are capable of existential, psychoanalytic, and—in the light of recent neurophysiological discoveries—perhaps even somatic interpretation on different levels of different systems. It may well be that dreams are differentially rated on these different levels of interpretation and that

the therapist must use careful judgment in choosing the level on which each dream should be understood primarily. However, dreams which repeat themselves unchanged over many years almost surely carry a particularly significant existential meaning and reflect the dreamer's fixed orientation within his world.

One of my patients—an intelligent woman in her thirties who had problems with drinking, depression, and family adjustment—all her life had the recurrent dream that she was holding a baby in her hands and was trying to feed and care for it. However, the baby was shorter than her fingers and she invariably crushed it, despite her efforts to protect it. After a year of psychotherapy she dreamed, for the first time, that she was holding a baby of normal size and that she succeeded in caring for it without crushing it. This dream occurred as she was getting over her depression, beginning to drink less and to help her husband and children (who also had considerable emotional difficulties) more effectively than she had been able to do for years. At the same time, she was also beginning to develop a keen interest in her garden; until then, she had been convinced that she lacked "a green thumb" and would kill any plant she tried to cultivate.

The existentially oriented psychiatrist has little difficulty in understanding the occurrence of now well-established diagnostic dreams which reveal to the dreamer the presence of physical illness of which he has not yet been aware in his waking life, or even of premonitory and "prophetic" dreams which foreshadow the development of a destructive mental illness years before this illness becomes evident. Boss gives a number of examples of patients who developed acute schizophrenia in their twenties but had had, since their seventh or eighth year of life, recurring dreams of the world turning into stone or into skeletons or being engulfed by horrifying emptiness.[15]

One of my patients dreamed that he was in an elevator which was rapidly going up. He was suddenly seized with panic as he realized that there was nothing to prevent the elevator from shooting through the roof of the building. A few

days later he developed an acute, agitated depression. Why was the impending depression represented by a rapidly *rising* elevator, instead of by the usual symbols of downward movement? In this patient, the depressive symptoms consisted mainly of a very acute sense of loss of the past and anxiety, bordering on panic, that with every passing minute the distance between the happy and secure past and the uncertain present and future became greater—as the patient was shooting out into the future.

Another of my patients, a man in his forties, who had, under therapy, recovered from a severe anxiety attack, dreamed that he had lost his footing and was rapidly sliding down a dangerous mountain side. He was saved from disaster only by hitting a big boulder on his downward slide which enabled him to get back on his feet. He felt no anxiety during the dream nor when he reported it.

Why would he dream of sliding *down* a dangerous mountain side when he was, in reality, *recovering* from his emotional breakdown? And why did he not feel disturbed about the dream? Because the world design, the fundamental mode of existing of this man was a continuous risk-taking accompanied by the conviction that his personal good fortune would save him from disaster and insure his success against the adverse odds of the physical world. During his illness, he had doubted that he still possessed this personal protection. As he recovered, the dream—the gentle rebounding from the rock which checked his fall—triumphantly demonstrated to him his renewed immunity against the threats of the laws of physical probability.

Binswanger discusses the interpretation of a dream of his patient, Ellen West.[16] In her dream, she had jumped from a boat into the water. Both her lover and her husband had tried to revive her. In her dream, she also ate many chocolate candies and packed her trunks. In her waking life, Ellen West was tortured by her compulsion to eat chocolate candies and by her horror of becoming fat. Binswanger, in his existential analysis, accepts the Freudian interpretation that, for this patient, eating symbolized becoming impregnated. However,

Binswanger does not accept that her craving for food should be interpreted as *substituting* for her craving for love. Rather, Ellen West lived in an empty world and her master design of the world as a hole or a pit is responsible for her wanting to fill it. But since it remained empty of love, in spite of all her efforts to find love, she had to fill her world with food and pregnancy, both of which had equal value in the existential dream interpretation. But in so-filling the empty hole, it became—as she saw it—an overflowing, rotting, evil swamp. The existential dilemma resulting from Ellen West's inadequate attempts to achieve a more acceptable world design led eventually to her suicide.

Commenting on the use of psychoanalytic techniques in existential analysis (*Daseinsanalyse*), J. Needleman says: "It should be kept in mind that in Binswanger's perspective *Daseinsanalyse*, without such techniques and theorizing as is found in psychoanalysis, is clinically almost impotent, but also that psychoanalysis without *Daseinsanalyse* is in danger of biased distortion of the patient's world—even where it is clinically most successful."[17]

The existential understanding of the meaning of a dream, of course, does not explain the *causes* for an individual's own world design; nor does it provide material that might be helpful in changing this design. All it can do is demonstrate the nature of the design to the dreamer and to the therapist.

The existential needs for authenticity, understanding, and encounter are in basic contrast to the intellectual needs for explanation, change, and transference which are the conceptual tools of the nonexistential psychiatrist. Existential psychiatry does not aim at getting a patient to grasp the scientific cause-effect relationships of his symptoms and dreams, on the theory that this would help him to lose his symptoms. The goal of the existential psychiatrist is to make his patient aware of his, the patient's, mode of being-in-the-world; to point out the fundamental direction and perspective of the patient's world design; and to confront him with the responsibility of accepting or rejecting it.

For the psychoanalyst, man is not free but forever determined by the world around him, consciously and unconsciously. The most that can be done is to help him to sustain an illusion of freedom. For the existentialist, man is always free to interact creatively with the world, to design and redesign it according to his own choice. He may not always be inclined to accept this freedom but may prefer to live in an unauthentic manner by giving himself over to one of the many human activities which will allow him to evade the responsibility of making free choices. Science can become such an escape activity if it assumes the proportions of an all-important life philosophy.

Descartes' Dream

No discussion of the existential approach to dream interpretation is complete without reference to a few of the "classical" examples of existential dreams. Here then are three such examples of dreams—reported or conceived by Descartes, Kierkegaard, and Freud—with their existential interpretations.

Descartes was twenty-three years old when he had a series of three dreams in one night which he described in minute detail and which marked a fateful change in his life style. Descartes describes the year (1619) in which he had these dreams: "But after I had thus spent several years studying in the book of the world, and trying to acquire some experience, I resolved one day to study within myself as well . . . ." [18]

In his first dream, Descartes was walking on a street and was frightened by phantoms. He had to tilt himself over on his left side because he felt a great weakness in his right side. A gusty wind swept him into an eddy and forced him to spin around three or four times on his left foot. He tried to find shelter in an open school, then wanted to retrace his steps to greet a man whom he had at first passed without any salutation. Then he met someone else who addressed him politely and said that he wanted to find a Monsieur N. because he had something to give him. Descartes imagined it was a melon from a foreign country. He was surprised to see that all the people around this man were standing upright and steady on their

feet although he, himself, was all bent and unsteady. This was despite the fact that the wind had greatly diminished.

At that point, Descartes awoke feeling distressed. He lay awake for two hours, then fell asleep again, and had a brief dream of hearing a sharp loud noise which he took to be thunder. This frightened him so much that he awoke instantly. As he opened his eyes, he had a sensation of fiery sparks flying through the room. His mind now felt more at ease and soon he fell asleep again.

He began his third dream, in which he found a dictionary on the table. He then found another book of ancient Latin poems. Opening the book, his glance fell on the verse: "*Quod vitae sectabor iter?*" (What path of life shall I pursue?). He then saw a man who gave him a verse beginning "*Est et non*" (to be and not to be). For awhile, he was looking for the dictionary which seemed to have disappeared, but finally he found it again at the other end of the table. However, it was no longer as complete as it had been when he first had seen it. As he was looking through the dictionary, he was attracted by several small engraved portraits which led him to remark that the book was very beautiful, although it was not the same copy as the one he had originally found.

Descartes, himself, made the following existential interpretation of his dreams: The first two were "menacing warnings touching his past life which could not have been so innocent before God and man." The melon represented the "charms of solitude, but presented through purely human enticements." The wind was "nothing else but the evil spirit that tried to throw him forcibly into a place where he intended to go voluntarily." The thunder was "the signal of the spirit of truth which came down to possess him." The dictionary and the collection of poetry referred to all sciences and philosophy and wisdom. And the question "What path of life shall I pursue?" was, according to Descartes, "the good advice of a wise man," while the verse "*est et non*" referred to "truth and falsity in human knowledge and the material sciences."

Freud's comments on Descartes' dreams, according to

Jacques Maritain, were that they belong in a category of dreams with content closely related to conscious thought and to preoccupations of the waking state.[19] J. O. Wisdom attempted a psychoanalytic analysis of Descartes' dreams and thought that they were centered on Descartes' Oedipus situation, containing an impotence theme and reference to castration fear.[20] But the dream does not seem to reveal sufficient unconscious material for an adequate Freudian interpretation, and the dreamer's associations are not available.

However, Descartes' three dreams have all the characteristics of existential dreams as they reveal the dreamer's apprehension over his former way of life and his acceptance of a new course. Descartes' new direction was toward science and philosophy. Eventually he would ask his famous question about human existence—and answer it more incisively than anyone had ever answered it before him. Descartes was able to understand these dreams because their messages were not coded, but rather, expressed openly.

Kierkegaard's Dream

Throughout his personal life, Kierkegaard—acknowledged as one of the founders of existential philosophy—was a melancholic, one to whom "God had given the strength to live as an enigma." In 1835, he wrote in his *Journals* the following, entitled "Solomon's Dream," which he obviously invented to explain his own ceaseless struggle with God and the world:[21]

> . . . There is no greater emotional torture than to be made ashamed of one's father, ashamed of the man one loves most and to whom one owes most, than to have to approach with back turned and with averted eyes in order not to witness his dishonour. . . .
>
> Solomon . . . was living with the prophet Nathan. His [Solomon's] father's strength and his father's achievements did not spur him to action, for they left him no opportunity, but it drew from him admiration, and admiration made him a poet. But while the poet was almost envious of his father hero, the son was happy in his devotion to his father.
>
> Once the young man went to visit his royal father. He woke in the night at the sound of movement, where his father slept.

Terror seized him, and he feared that some miscreant was seeking to murder David. He stole near—he saw David with broken and contrite heart, he heard the cry of despair from the penitent soul.

Powerless, he sought again his couch; he slumbered but he did not rest, he dreamed; he dreamed that David was cast out by God, an ungodly man, that his royal majesty was the anger of God upon him, that he wore the purple as a punishment, that he was condemned to hear the praise of his people, while the hidden justice of the Lord secretly condemned his guilt; the dreamer suspected that God was not the God of the pious, but of the ungodly, and that only the ungodly were chosen of God; and the terror of the dream lay in that contradiction.

As David lay upon the ground with contrite heart, Solomon stood up from his couch; but his understanding was broken. Terror seized him when he thought what it meant to be marked out by God. He suspected that the Saint's intimacy with God, the uprightness of the pure before the Lord, was not the explanation, but that secret guilt was a mystery that explained all.

And Solomon became wise, but he did not become a hero; and he became a thinker, but not a man of prayer; and he became a preacher, but not a man of faith; and he could help many, but he could not help himself; and he became sensual, but not repentant; and he became contrite, but he raised up again, for the power of his will was strained by the weight which had been above the powers of his youth. . . .

Solomon's dream is not a "real" dream. However, it clearly exposes the existential mode of dealing with a dream—namely, to consider it as a revelation of the basis for a particular man's existence.

Kierkegaard's father had been a guilt-laden man who was full of religious despair. Because of his own unhappiness, he had unwittingly marked out a life of agonized and lonely struggle for his famous son. This would be the traditional psychological explanation for Kierkegaard's character structure—both on the level of the ego and superego in terms of psychoanalytic theory and on the level of conditioning in terms of learning theory.

However, the real grounds for Kierkegaard's troubled and rebellious pessimism are bared, not by empirically established

psychological laws, but by this revelation in the dream which he ascribes to Solomon: ". . . God was not the God of the pious, but of the ungodly, and that only the ungodly were chosen of God . . . . But that secret guilt was a mystery that explained all . . . ." This revelation answers, in an existential manner, the question, Why did Kierkegaard (Solomon) live the way he did? The dream, as with other existential answers, represents a fusion of rational and emotional solutions which go beyond the level of scientific laws.

From an existential point of view, Kierkegaard was chronically depressed and had to live in rebellion and despair because of his religious insights which he took seriously. But why did he have religious insights of this nature? Why did he take them so seriously? Nonexistential psychiatrists might say that the reported insights were symptomatic of a chronic depression and might "explain" Kierkegaard's melancholia by saying his attitudes were determined by somatic predisposition—perhaps a disturbance of his catecholamine balance—or by his early learning experiences, or by special configurations in his family romance. The existential psychiatrist would not attempt—or see the need for—answers to these questions. He would accept the insight, taken at face value, as reason enough.

Freud's Dream

The psychologist Wolff analyzed Freud's own dreams, published in Freud's writings, and came to the conclusion that the pattern of these dreams reflects Freud's Faustian struggle for immortality.[22] Like Faust, Freud had to make a pact with the devil in order to obtain what he desired most. He was faced with a choice between two different phases of existing: one, the ordinary life, secure but limited; the other, exciting and exotic, but involving a pact with the devil.

Freud recalls this significant dream:[23]

> . . . I go into a kitchen in order to ask for some pudding. There three women are standing, one of whom is the hostess; she is rolling something in her hands, as though she were making dumplings. She replies that I must wait until she has finished. I become impatient, and go away affronted. I want to put on

an overcoat; but the first I try is too long. I take it off, and am somewhat astonished that it is trimmed with fur. The second coat has a long strip of cloth with a Turkish design sewn into it. A stranger with a long face and a short pointed beard comes up and prevents me from putting it on, declaring that it belongs to him. I now show him that it is covered all over with Turkish embroideries. He asks: "How do the Turkish drawings, strips of cloth, concern you?" But we soon become quite friendly.

Freud's own associations to this dream were as follows: ". . . the three Parcae who spin the fates of man; and I know that one of the three women, the hostess, in the dream, is a mother who gives life." He also associates a scene in his mother's kitchen when she was making dumplings. Elsewhere, Freud records an actual incident from his childhood in which an object of fur clothing also was important. He went for a walk with his father who told him the following story from his own past:[24]

> . . . When I was a young man, I was walking on Saturday along the street in the village where you were born; I was well dressed with a new fur cap on my head. Up comes a Christian, who knocks my cap into the mud and shouts, "Jew, get off the pavement!"
>
> "And what did you do."
>
> "I went into the street and picked up the cap," he calmly replied. That did not seem heroic on the part of the big, strong man who was leading me, a little fellow, by the hand."

(This childhood experience of Freud brings to mind the childhood experience of Kierkegaard which he recorded so passionately in "Solomon's Dream:" ". . . There is no greater emotional torture than to be made ashamed of one's father . . . ." But Kierkegaard chose to exist as an introspective melancholic rebel while Freud went on to become an intellectual conquistador.)

In his dream, Freud chooses the coat with the Turkish embroideries over the coat with fur trim. Wolff interprets the Turkish design on the coat as a design of fantasy and adventure. But the stranger with the short, pointed beard prevents him from putting it on, saying that it belongs to him.

The dream concludes: ". . . We soon become quite friendly." In Wolff's interpretation, the stranger with the pointed beard is Mephistopheles, and Wolff believes that Freud was saying at the end of the dream that he had made his pact with the devil. Ultimately, Wolff notes, Freud became the "dare-devil, the *enfant terrible* of the century, the great anti-moralist, advocate of the power of the underworld."

Physiology and Existential Dreams

Three aspects of the dream must be considered as independent entities, even though they interact importantly with one another. These are, first, the dream's *biological substrate*, responsible for the neurophysiological conditions which enable man to have dreams; second, the dream's *psychological theme*, seen as repressed psychological material of the latent dream content by the psychoanalyst, or as a goal in the Jungian system, or as an autonomous, self-expressive mode of existence according to one's freely chosen world design by the existentialist; third, the dream's *psychological material* (i.e. the images, ideas and feelings from which the manifest dream is constructed).

Not many will contest that dream material, the actually dreamed content, is determined to some extent by a theme or themes of the dream. There is now increasing evidence that the neurophysiological substrate of the dream may also influence dream content. This influence may extend not only to the images, ideas, and feelings, but also to the coordinating themes. The influence of psychotropic drugs on dream content has been successfully explored by a number of investigators, since Benedek and Rubenstein demonstrated in their classical study more than a decade ago that changing endocrine phases of the menstrual cycle consistently influenced the thematic dream content.[25] Elsewhere, I have discussed the theory of psychotropic drug action on existential aspects of psychological processes.

A wealth of new findings concerning the biology of dreaming which has been assembled in the last few years indicates that the primary influencing factors in the production of dreams

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DISCUSSION

ERWIN W. STRAUS

WHEN I was invited some time ago to discuss Dr. Lehmann's contribution "An Existentialist View" of dream interpretation, I was not sure what to expect—whether Dr. Lehmann planned to discuss and to criticize dream interpretation from the vantage point of existential philosophy or to present an existentialistic version of dream interpretation. Actually, his interesting discussion takes up both themes, and in his chart he even refers to some physiological observations which certainly challenge Freud's tenet that the dream protects sleep, and also Boss' assertion "that we must recognize the dream as a form of human existing in its own right." *

Due to the limited nature of this Discussion, I cannot do much more than add a few footnotes to Dr. Lehmann's stimulating work. Since he chose Boss as the main representative of existential dream interpretation, I shall comment on his work first.

Medard Boss is a Swiss psychiatrist teaching and practicing psychotherapy in Zurich. Thanks to Eugene Bleuler, the University of Zurich was the first in Europe to open its academic halls to Freud's revolutionary ideas; thanks to Kraepelin and others, Zurich remained the only one for many years to come; and finally, thanks to C. G. Jung, Zurich in 1912 was the scene of the first secession within the psychoanalytic movement. Fifteen years later, Ludwig Binswanger published a little book entitled *Transformations of the Conception and Interpretation of Dreams from Antiquity to Modern Times.*† To his historical survey, Binswanger added, in 1930, an essay in which he offered as a personal contribution a new variation of dream interpretation—or to be more precise, an interpretation of cer-

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* In this quotation taken from Medard Boss' book,[2] the word "existing" must be understood in its modern post-Heideggerian sense.

† The first word of this title repeats, intentionally or not, the first word of Jung's essay, "Transformation and Symbols of Libido."

tain types of dreaming: rising and falling were the main themes of the dreams presented and discussed. The title of this essay,[1] "Dream and Existence," pointed to the new vistas opened through Heidegger.

During the following two decades, Binswanger applied, but also transformed, Heidegger's analytic of *Dasein* in his *Daseins-Analyses*. It was in this period that Boss accepted Binswanger's methods. His monograph on sexual perversion, published in Germany in 1947, carried the characteristic subtitle, "Daseins-Analytical Contribution to the Psychopathology of the Phenomenon of Love." * Yet, six years later, in the *Analysis of Dreams*,[2] Binswanger was treated with less than courtesy. Boss, who between 1947 and 1953 had made Heidegger's personal acquaintance, let it be known that he "benefited from Heidegger's unstinted readiness for direct discussion." As it often happens in such relations, the disciple, accepting the master's guidance in perfect devotion, landed in an extreme position. Let me give you an example.

Exploring the problem of the reality or unreality of dreams, Boss[2] wrote, "In our dreams we experience real physical facts: a thing is a real thing, and an animal is a real animal, a man is a real man and a ghost is a real ghost. In our dreams, we are in just as real a material world as in our waking life and, in both cases, we express our individuality in our behavior and relationships with the objects and fellow beings around us." Yet, the sun shining in my dreams does not illuminate the room for others. A girl will not conceive just through dreaming of an intimate relation with her boyfriend. We may be sure that a husband who, returning after a year's absence, finds his wife pregnant would not accept her reference to a dreamed escapade, even if she would show him the passage on page 160 of Boss' book.[3] Neither, I believe, would Boss himself accept a patient's dreamed payment in lieu of real Swiss francs.

Dr. Lehmann referred to phenomenological methods; so did

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* "Love" was an "existential" that Binswanger added to Heidegger's "care."

Binswanger, Boss, and Heidegger before him. Yet, there are marked differences between Heidegger's and Husserl's phenomenology, notwithstanding the fact that Heidegger's "Being and Time" was published, 1927, in the *Yearbook for Phenomenology* and dedicated to Edmund Husserl: "In admiration and friendship." This obviously is a devout dedication. Indeed, Heidegger had good reason to be grateful, for Husserl had supported his academic career whenever possible. Yet, when we give a second reading to the Dedication, we may discover a latent meaning below the manifest content; for the Dedication *emphasizes* a friendship between a man in his thirties and a man in his sixties, between a neophyte and an emeritus; thereby the Dedication *deemphasizes* the relation of master and pupil*—not without good reason, for in his philosophical thoughts and attitudes Heidegger was much closer to Kierkegaard, with whom he shared such topics as *dread and despair*, *choice and decision*, *guilt and authenticity*, and *death and finiteness*.

Heidegger, therefore, found it necessary to draw a demarcation line: "In the Nineteenth Century, Soren Kierkegaard expressively seized upon the problem of existence as an existential problem and thought it through in a penetrating fashion, but the existential problematic was so alien to him that, as regards his ontology, he remained completely dominated by Hegel . . .". In another section of his book, Heidegger wrote: "Kierkegaard is probably the one who has seen the existential phenomenon of the moment of vision with the most penetration; but this does not signify that he has been correspondingly successful in interpreting it existentially."

Heidegger criticized the philosophical Establishment for having forgotten its fundamental question, namely, to inquire into

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* In the Introduction to "Being and Time," Heidegger wrote: "The following investigation would not have been possible if the ground had not been prepared by Edmund Husserl . . . our comments on the preliminary conception of phenomenology have shown that what is essential in it does not lie in its 'actuality' as a philosophical movement. Higher than actuality stands 'possibility.' We can understand phenomenology only by seizing upon it as a possibility."

the meaning of Being*: "Of all questions both the most basic and the most concrete!" The analytic of *Da-Sein* † is the method leading to an answer for that fundamental question. "*Da-Sein* is distinguished by the fact that in its very Being, this Being is an issue for it." Understanding of Being is itself a definite characteristic of *Da-Sein's* Being. "That kind of Being towards which *Da-Sein* can comport itself in one way or another, and always does comport itself somehow, we call existence."

Because *Dasein* is in each case essentially its own possibility, it can choose and win itself or it can lose itself. In other words, it can be *authentic* or *inauthentic*. "But the inauthenticity of *Dasein*," Heidegger emphasizes, "does not signify any less 'Being' or any lower degree of Being." Rather, it is the case that *Dasein*, even in its fullest completion, can be characterized by inauthenticity—"when busy, when stimulated, when interested, when ready for enjoyment." Inauthenticity is an ontological, not a psychopathological concept. It can therefore not be the task of a psychotherapist to lead a patient from inauthenticity to authenticity, as Boss claimed.‡ It seems that the patients cured by Boss must almost reach the state of sainthood.

In his essay, "*Dasein* and Existence," Binswanger discussed Heraclitus' famous dictum, "those who are awake share one and the same world; in sleep, each withdraws in his private world,"

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* In this context, Being is spelled in the English translation with a capital "B" in order to distinguish it from "beings" such as man and animals, sun and moon, lakes and rivers. The German language makes the distinction easier, for *Being* stands for *Das Sein* and *being* for *das Seiende*. *Das Sein* is an infinitive used as a noun, while *das Seiende* is the participle also used as a noun.

† The word *Da-Sein* also needs some commentary. Before "Being in Time" the German noun *Dasein* had been used as synonymous with existence or life. Emphasizing the second syllable *Sein* in *Da-Sein,* Heidegger used this word instead of human being whose essence, according to Heidegger, lies in his existence.

‡ On the other hand, if the psychotherapist conceives of man's essence as existence in Martin Heidegger's sense then he will speak of a complete cure only when his patients can see themselves, so to speak, as a light emanating from the mystery of existence in whose rays all things and fellow-beings are allowed to appear and to develop according to their own nature."[2] p. 119.

Binswanger's comment being in line rather with Hegel's fanciful exegesis than with the plain text of the aphorism. Boss resumed the discussion, but only in order to refute Heraclitus through the simple device of statistics, referring to C. S. Hall's observation that "85 per cent of dreams are concerned with other people," etcetera. However, Heraclitus had not said that the sleeper produces solitary dreams nor that the scene of his dreams was populated with monsters not encountered in daylight hours. In fact, he did not make a direct reference to dreams at all but compared the sleeper and his world with that shared by all of us who are awake. This certainly is a well-taken position, a distinction which should precede all attempts at dream interpretation. The fact of the world in common is undeniable; otherwise we, you and I, could not con-vene in a con-ference, listen together to one speaker after another and carry on a discussion in common. How we can account for this situation of transcending the border of our physical existence is a problem which I cannot discuss at this moment when my parking meter is running out fast. Instead, I may add to Heraclitus' fragment a fragment of my own:

In remembering past events, each person returns to a private world of his own, inaccessible to anybody else; yet he could present his story to someone else and let that someone, through meditation of the spoken or written word, indirectly share his memories in a common cosmos. For example, I alone am in a position to remember directly at this moment the house and garden of my childhood or my first arrival at Hoboken. If I were a skillful narrator, I might solicit in my listeners lively images of these past situations. Even so, nobody can ever actually reproduce my remembrances as such, not even when we, I and they, at a reunion indulge in memories of bygone situations through which we passed together.

Obviously, the past remembered has no place in the actual present, neither in the continuity of the inhabited space nor in the actuality of the lived moment. However, while the remembered event is past, out of reach, the act of remembering as such is anchored in the present. Distinguished by a dual

temporal aspect, remembering demands a definite awareness of the present situation, that is, of the actual position in relation to a lasting ground.

In my fantasies and memories, I am free to jump. In one moment I cross the ocean and come back. In the concreteness of my corporeal existence and awareness I am held by the power of gravity to the ground and environment which proscribe me to a determined order and sequence. This lien is loosened in sleep. When lying down, relinquishing my "position," when surrendering myself to sleep, I abandon the relation to the lasting present and thereby the possibility of establishing a remembrance that is something belonging to the past. Therefore, dreams are confined to a sequence of *now's* in a continuous metamorphic flux.

There are many who claim that dreams are personal creations; but certainly, during the dream, I find myself in a situation which does not show to me any signs of my authorship.

"When a bitter disappointment," Binswanger wrote at the end of his essay, "causes the ground beneath my feet to give way, then later, after I have 'pulled myself together' again, I express what happened by saying, 'I didn't know what hit me.'" Here, as Heidegger tells us, "the *Dasein* is brought before its own Being—insofar, that is, as something happens to it and the *Dasein* knows neither the 'how' nor the 'what' of the happening . . . . The dream means: I don't know what is happening to me . . . in no way, however, does the individual emerge as he who makes the dream but rather as the one for whom—'he knows not how'—the dream is made. And this individual is . . . the plaything of rising and falling life, the roar of the sea and the stillness of death, the brilliance of sun-bathed color and shadowy night, the sublime form of the eagle in flight and the chaotic heap of paper upon the floor, the splendor of a young maiden, the scent of seaweed, the corpse of a fallen bird, the powerful, terrible bird of prey, and the gentle dove . . . and the dreamer awakens in the unfathomable moment . . . when he resolves to bring continuity or consistency into a life that rises and falls, falls and rises. *Only* then does he *make* something.

That which he makes however is not life—this the individual cannot make—but history. Dreaming man—to use a distinction I have drawn elsewhere—is 'life function'; waking, he creates 'life-history.'"[1]

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Part Two

Problems in Dream-Content Analysis

III

Introductory Remarks

CHARLES K. HOFLING

IN THE FIRST section of this volume, our theme was one of challenge, "The Challenge Posed to Dream Theories by the New Biology of Dreaming." The latter section responds to that challenge. Surely one of the most wholesome of responses to an intellectual challenge is the gathering and sifting of fresh information. Those who have contributed to this section have done a great deal of this. Such response, however, involves its own problems, which will be discussed under the heading, "Problems in Dream Content Analysis."

On the basis of the previous contributions and of those to be presented, I should like—by way of introduction—to draw attention to a particular characteristic of our presenters and discussants and their work.

In recent years, notice has repeatedly been taken of the radical changes in attitudes of Western psychiatry and psychology which have occurred within the last three-quarters of a century regarding dreams. Before Freud's monumental work, psychiatry, at least, could scarcely be said to have recognized in dreams any problems worthy of consideration. After the full impact of Freud and his principal associates—say, from roughly the mid-thirties to the middle or late fifties—it could again be said that there were few recognized problems in the area of dreams. *Nonanalytic* (using this term in its broadest sense) psychiatrists and psychologists were really not very interested, and analysts considered the problems to have been largely solved. When, occasionally, there was sufficient interest to produce a challenge, it was likely to be rancorous.

During the last dozen years, matters have, of course, been drastically altered, and our writers represent a quite different position, being in the vanguard of one of the most profound scientific developments of the mental sciences in our time. The position taken, while not depreciatory of the past in the slightest degree, is that there is much yet to be learned and much to be firmly established about the psychology of dreams and of dreaming. Those of us working in other psychiatric and psychological areas are heartened by this forward-looking position.

The stance that our contributors take is that of rigorous adherence to scientific method. Like a physicist studying subatomic particles, they are aware that, even now, their instruments are, in comparison with the "structures" under investigation, relatively blunt. They are perfectly aware of an "uncertainly principle": As an investigator begins to close in on one aspect of this subject, he begins to influence it in another aspect. They do a remarkable job of identifying investigator influence and of minimizing investigator bias.

What is, however, perhaps the most remarkable characteristic of the contributors to this volume is their ability to generate intellectual tension without rancor. Their varying backgrounds and their varying theoretical views are, to our great benefit, dominated by a feeling of alliance in advancing their jointly-held portion of the frontier of knowledge.

Chapter 8

Normative Dream-Content Studies

Calvin S. Hall

The method of content analysis may be defined as the categorizing of units of qualitative material in order to obtain frequencies which can be subjected to statistical operations and tests of significance. By this definition, the investigator who employs content analysis is required to do two things: he must formulate a set of categories and he must decide upon a unit of analysis. Some of the complexities of these two basic requirements and some of the options available to the investigator as they pertain to the content analysis of reported dreams will be discussed herein.

Categories

Categories may be either empirical or theoretical, simple or complex, discrete or scaled, and individual or general.

Empirical Versus Theoretical Categories

An empirical category is one that is abstracted from the material itself. Resting on no assumptions or premises regarding dreams or personality, it is theoretically neutral. Many of the categories devised by Hall and Van de Castle [6] for analyzing dreams are empirical ones. They consist of items that appear in most dream reports: objects, setting, characters, activities, interactions among characters, achievements, misfortune, good fortune, modifiers, and the like. They were derived from the study of thousands of reported dreams and they circumscribe virtually everything that occurs in dreams.

A theoretical category is one that is tailored to fit a par-

ticular theory of personality. Some examples of theoretical categories that have been used in dream research are ego strength,[10, 11, 12] orality,[6, 11] anality,[11] genitality,[11] masochism,[1] regression,[13] castration anxiety, castration wish, and penis envy.[5] The most ambitious theoretical set of categories for analyzing dreams is one devised by Richard Jones.[7] It is modeled upon the developmental theory of Erik Erikson.

Theoretical categories are more difficult to derive than empirical ones. In the first place, one must be thoroughly conversant with the theory in order that the categories represent it fairly. One must also be thoroughly familiar with dreams in order to comprehend what theoretical categories are possible. It is futile to derive a set of categories from a personality theory and then find that these categories are rarely represented in dreams. Dreams may have little or no relevance for some theories of personality and a great deal for others. Dreams are especially relevant for testing hypotheses derived from Freudian and Jungian theories because these theories grew out of the study of dreams in the first place. By contrast, the personality theory of Carl Rogers does not seem to have any empirical roots in dreams, and it may prove difficult to derive categories from this theory.

A theoretical category translates a theoretical concept into something that can be identified in dreams. Who is to decide that the category does in fact represent the concept? The best judge is the theorist himself. Unfortunately, some of our leading theorists have not been very systematic in setting forth specific criteria for identifying their concepts in empirical material such as dream reports. Consequently, the work of translating a theoretical concept into a set of categories devolves upon the investigator. He may submit his categories to the scrutiny of others, especially to those who have had long experience in working with the theory, or to the theorist himself if he is available and willing. Consensus will not necessarily eliminate all errors of translation but it will eradicate many of them.

One of my students, Stan Smith, was interested in devising a set of categories for identifying anima figures in dreams. He read through the relevant works of Jung, noting every example where Jung identified an anima figure in a dream or in a vision. He then codified these examples into a set of categories. We are now in the process of having them checked by a Jungian group in Zürich. It is hoped that this procedure will meet the common criticism that a theory has been violated in the act of translating it into empirically testable terms.

Theoretical as well as empirical categories should be described in such explicit language that any competent investigator can use them. They should be formulated in the language of dream reports, and numerous examples from dream reports of what the category includes and excludes should be given. Categories described in such general terms that they require personal indoctrination in order to be usable are suspect. Their shortcomings will appear, however, when interjudge reliabilities are computed.

Finally, it should be pointed out that all theoretical categories are in fact empirical categories. Theory cannot conjure out of a dream something which is not there, although it can help one to locate something which is there. It is suggested that a dream researcher who plans to make a theoretical study begin by looking at dreams through purely empirical eyes divested of any theoretical motes or beams. Such an initial orientation should enable the researcher to avoid many of the snares and pitfalls that beset the formulation of reliable and valid theoretical categories.

Simple Versus Complex Categories

This dichotomy is an arbitrary one. There are actually many degrees of simplicity and complexity, and where one ends and the other begins is impossible to define. A simple category is one that requires a minimum of judgment on the part of the content analyst; a complex one requires a great deal. Classifying characters is simple, whereas considerable judgment may

be called for in estimating the level of ego strength expressed in a dream. The simplest set of categories which has been used in analyzing dreams consists of letting each different word in a dream report constitute its own category.[3] Only slightly less simple is a set of categories made up of synonyms [2] much like those in Roget's *Thesaurus*. Virtually all of the Hall-Van de Castle categories fall on the simple side of the continuum.

Many theoretical categories are complex, although this does not have to be the case. It depends upon the way in which the categories are specified. If one is asked to estimate ego strength, homosexuality, or castration anxiety without being given specific directives about what to look for, the task will be a complicated one and will probably result in low interjudge reliability. On the other hand, if criteria are clearly specified with relation to what is found in the dream reports themselves, the task can be quite simple. All one has to do then is to treat the criteria as a checklist and see whether any given criterion is present in the dream report. In the Smith-Hall study,[13] for example, a list of criteria for regression was made upon the basis of a preliminary study of a sample of dreams, and was then applied to a long dream series. The list consisted of a set of simple manifestations of regression.

Objections are often made to reducing a theoretical concept to a list of simple or elemental items on the ground that the coherence or unity of the concept is thereby destroyed. But is it not true that, no matter how global or intuitive one may think he is being in analyzing a dream, he still depends, consciously or unconsciously, upon fairly simple elements in forming his judgments? If this is the case, is it not better to spell out what the elements are? Intuition can be of great help in the preliminary stages of planning a project but at some point it should be abandoned in favor of objective procedures that may be used by any competent investigator. In this connection, it might be well to bear in mind Charles Osgood's cogent definition of content analysis. He says it consists of "methods in which the bias of the analyst is at least minimized, in which

the essential operations can be made explicit and the conclusions thereby more easily replicated, and in which the findings can be communicated in meaningful numbers.[8] "

Moreover, there are methods for resynthesizing a dream after it has been decomposed into its elements. One method consists of combining elements to form incidents or interactions. For example, our system for analyzing friendly interactions involves combining characters with friendly acts. Suppose a young man dreams that he gives his girlfriend an orchid corsage. This is coded as D 3⟶1FKA. D stands for the dreamer, 3 is the code for giving a present, 1 designates an individual, F is female, K is a character known to the dreamer, and A is an adult. The arrow indicates that the dreamer initiates the friendly act and the girl is the recipient. Additional elements can be added to enlarge the scope of the incident. These may be events which preceded the friendly act, how the recipient reacted, and the nature of the setting in which it occurred.

Another method by which elements can be combined is contingency analysis. This method enables one to determine what elements occur together more often than would be expected by chance. We made a contingency analysis of a long series of dreams obtained from a man and were able to demonstrate quantitatively what our qualitative impression was, namely, that his dreams expressed considerable concern over lower-bowel functioning. Contingency analysis enabled us to show that such elements as *tunnel*, *pressure*, *explosion*, *brown*, *dirty*, *water*, and *empty* occurred in the same dream more frequently than would be expected by chance. Contingency analysis is a powerful quantitative technique and deserves to be more widely employed in studies of content analysis.

Discrete Versus Scaled Categories

A discrete category is one which stands by itself and has well-defined limits. It is not a point on or a region of a continuum. Hall and Van de Castle list eight classes of activities—verbal, physical, movement, location change, looking, listening,

thinking, and expressive communication like laughing and crying—which are discrete categories. Discrete categories may be combined to form larger ones or may be divided into smaller ones. Physical activities, for example, embrace a large number of different acts, each of which may be considered a separate category if the investigator so desires.

Scaled categories are those which are ordered to a continuum. They present different degrees of a phenomenon: more or less, greater or smaller, weaker or stronger. Scaled categories are ratings. A number of psychometric procedures for scaling items are available, but to my knowledge they have not been used in dream research. With one or two possible exceptions, all of the Hall-Van de Castle scales are ordinal in character. This means that categories are coded by numbers or letters just as football players are designated by numerals. One exception is the aggression scale which consists of eight steps ranging from a low of unexpressed feelings of hostility to a high of murder. These eight steps have not been scaled by any psychometric technique because to do so involves dilemmas and absurdities that we believe are unsolvable. Suppose in a scaling procedure, that murder received a value of eight and feelings of hostility a value of one on an equal-interval scale. This would mean that eight instances of feelings of hostility comprise the equivalent of one murder. We submit that this is a psychological absurdity no matter how psychometrically correct it might be. In our judgment, it makes more sense to treat any type of aggression as an equal among equals or to make comparisons by discrete types. Van de Castle and I have found it useful in some content-analysis studies to reduce the eight classes of aggression to two—psychological versus physical. This is justified also by virtue of the fact that the distribution of frequencies for the eight classes is bimodal.

It is appropriate at this point to acknowledge the perennial question which is raised whenever content analysis is discussed. Indeed, it is a perennial question in all of the social and behavioral sciences. How is intensity to be measured? For reasons given above and with exceptions to be noted below, I do not

believe the answer is to be found in the use of scaled categories or ratings. The best measure of intensity to my mind is frequency of occurrence. Intensity varies with frequency.*

Scaled categories or ratings may be used to advantage when dream experiences vary naturally in intensity and when the dreamer himself makes the rating. Feelings and emotions are experiences that fall readily along a continuum of intensity. One is aware of different degrees of anger, fear, or joy. Usually, however, the degree of emotion is known only to the dreamer; therefore, it is he who has to make the rating.

Individual Versus General Categories

An individual set of categories is one that is constructed to be used with a particular set of dreams. Dorothy Eggan [4] constructed categories for analyzing a long dream series collected from a Hopi Indian. The categories were formulated in such a manner that the contents of his dreams could be related to the specific cultural influences of Hopi society. We also devised a set of individual categories for analyzing the dreams of an anally preoccupied person.

General categories are those that may be used in analyzing any set of dreams.

One last word about categories. They must satisfy that stern-

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* To assume that frequency of occurrence is a measure of intensity ignores the possible influence of repression, symbolization, and reaction formation on the formation of dreams. In regard to repression, one cannot analyze something that is not there. Repressions may be brought to the surface by free associations in which case the associations can be subjected to content analysis. However, if something is absent from a series of dreams that one expects to be there on the basis of norms, one can investigate the possibility that absence or low frequency is due to repression. In order to do this, however, one has to move outside the realm of dreams. Symbolization is not a problem if the distinction between empirical and theoretical categories is borne in mind. Guns and automobiles are empirical categories; they become theoretical when subsumed under the heading of phallic symbols. Symbolization means nothing more than that a theoretical penis has been transformed into an empirical gun. It is doubtful whether reaction formation occurs very often in dreams, but if it does, it has to be treated in the same manner as repression (i.e. by going outside of dreams for validating evidence).

est of all criteria—interscorer reliability. If two competent judges, working independently, do not agree on the analysis of a dream, then the categories are worthless, whatever their other merits may be. Reliability is the *sine qua non* of content analysis, as it is of all scientific observation.

Units

The choice of an appropriate unit for analysis is as important for quantitative studies of dreams as the formulation of reliable categories. In rare cases, the dream report as a whole can serve as the unit, for example, when dreams are classified as pleasant or unpleasant. Usually, however, frequencies are affected by the length of the dream. There is more of everything in long dreams than in short dreams. Under certain conditions, dreams can be matched for length when groups are being compared, but often this is not feasible. Length of dream report can be controlled by dividing the number of words in a report by the frequency of occurrence of a given category. When groups are being compared for frequencies of subcategories, as for example the eight classes of activities, effect of dream length can be removed by converting frequencies of subcategories into proportions of the total frequencies.

In analyzing interactions such as aggression, friendliness, and sex, frequencies are not only affected by dream length but also by the frequencies with which various classes of characters appear. For example, there are many more male than female characters in dreams reported by men. Consequently, the probability of a male dreamer having an aggressive or friendly interaction with another male is greater than the probability of his having either interaction with a female. In order to remove this inequity, the frequency of an interaction with a class of characters is divided by the frequency of that character class. Number of aggressions with males is divided by number of males, for instance.

Another method for handling this problem, when one is interested in comparing frequencies of aggressive and friendly encounters, is to divide the number of aggressions by the number

of aggressions plus the number of friendly interactions for a given character class. The resulting proportion reveals whether there are relatively more aggressions or more friendly interactions with a class of characters.

One of the most ambitious attempts to unitize dream reports was undertaken by Perry.[9] A scoring unit is defined as something happening to a specific agent in a particular location. Other investigators [12,14] have used independent clauses as a scoring unit. Words have also been treated as units.[3]

Other methods of eliminating the influence of dream length or differential frequencies within subcategories can be improvised to deal with special circumstances. The problem of units is one that cannot be ignored without jeopardy to the results obtained.

This concludes our discussion of two of the basic issues in quantitative content-analysis studies. There are many other problems. Adequate norms are essential, but so far only a small beginning has been made in providing norms for what people dream about. The manner in which dream reports are made—in writing or by tape recording—and where they are made—in the laboratory or at home—are important variables. So, too, are the instructions given the subject regarding the specific material to be included in the dream report, and the questions that are asked following the report. It makes a great deal of difference whether one dream per subject is obtained or a series of dreams is collected from a subject. In the final analysis, every investigator who uses the methodology of content analysis must deal with these manifold problems in a manner that is consonant with the objectives of his investigation. What is appropriate for one study may be entirely inappropriate for another. What is appropriate for all studies, however, is a rigorous, objective, and quantitative methodology.

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Chapter 9

Problems in Applying Methodology of Content Analysis

R. L. Van de Castle

Just as the "new" biology of dreaming is not really completely new and has antecedents in earlier observations that changes in muscle action currents preceded dreaming,[14] that dreams occurred when delta waves were absent,[4] and that they occurred during stages of disturbed sleep which were accompanied by respiratory and circulatory changes,[13] so too, the proponents of a "new" quantitative dream psychology have their historical predecessors.

Mary Calkins [5] reported a statistical study of 375 dreams in 1893 in a paper that was briefly and appropriately entitled "Statistics of Dreams." Her approach was continued by two of her students, Weed and Hallam,[22] who published their findings in 1896. Earlier, Jastrow [11] had made a careful comparison of the types of sensory imagery that appeared in the dreams of two hundred blind subjects. In this paper, published in 1888, he reported that all the characters appearing in the dreams of one deaf and blind subject "talked" with their fingers and that the subject herself was observed to "talk" with her fingers during her sleep. Incidentally, it is of interest to note that Jastrow was not the first to study systematically the dream imagery of the blind. In 1838, Heerman [9] had published a sixty-two-page article describing his findings which Jastrow was to confirm fifty years later.

If we move to the twentieth century, one of the occasionally cited investigators is Bentley,[3] who utilized a standardized dream report form that inquired into such details as the types of emotions involved and whether the persons in the dream were

known or unknown and whether the scenes involved recent or remote events. The analyses obtained from the use of this standardized form were published in 1916. By far, however, the most comprehensive and detailed standardized form ever constructed was Horton's "Dream Analysis Record" which was published in 1914.[10] I have never come across any published reference to his very sophisticated content-analysis form, but the modern worker would be well advised to spend some time perusing it. Sometimes scanning pages in the library can be nearly as rewarding to the dream researcher as scanning the pages of an EEG record.

Turning attention now to the present, to this new era of the objective EEG indicators of dreaming, it is obvious that tremendously important strides have been made toward increasing our understanding of the biological aspects of dreaming. Unfortunately, our understanding of the psychological aspects has not advanced very far and the research efforts in this direction have been quite minimal. This is due in large part, I think, to the problems inherent in providing objective indicators that adequately represent the content of dreams. The EEG tells us *when* the dream is present; now we need the measuring techniques to tell us *what* is present in the dream.

Dr. Hall, who is, unquestionably, the foremost dream-content analyst, has pointed out the numerous methological problems which must be faced by any researcher who undertakes the task of constructing dream scales. His own efforts to develop rational, relevant, and reliable measures of dream content have covered a twenty-year span of activity; the issues he raises on the basis of this very extensive experience must be squarely faced if we are to achieve progress in this area. If our scientific predecessors had paid more attention to the available leads contained in the existing literature, we should not have had to wait so long for the exciting era of the new biology of dreaming. Let us hope that the equally exciting era to be associated with the new psychology of dreaming will not be delayed because we have failed to pay attention to techniques and information which are currently available to us.

In his chapter, Hall makes a distinction between empirical and theoretical categories. He defines an empirical category as one that is abstracted from the material itself and is theoretically neutral because it rests upon no assumptions about personality. Examples of empirical categories are the settings, objects, and characters categories we developed.[8] A theoretical category is defined by Hall as one that is tailored to fit a particular theory of personality; he gives examples such as the orality scales developed by Sheppard [16] and by ourselves [8]; the anality scale by Sheppard [16]; and the castration-complex scales we developed.[8]

Of course, not all dream categories can be easily catalogued as belonging to an empirical or theoretical grouping. Hall says that all theoretical categories must ultimately become empirical categories because theory cannot conjure something out of a dream that is not there and the researcher must specify precisely what dream elements he will, on an *a priori* basis, select as representative of the personality construct under investigation. Sometimes, the process becomes reversed. Instead of having some preconceived theoretical category in mind that is brought to the dreams, the dreams will suggest that the investigator develop some special theoretical scale to reflect a pattern which is not adequately caught with existing empirical scales.

I will give a few examples from some of my recent work that should illustrate how systematic use of a comprehensive set of empirical categories can lead to the development of new theoretical scales.

In studying the dreams of over twenty pregnant women,[21] I noted that during the last trimester approximately 35 per cent of their dreams contained reference to a baby or child. Reference to a baby or child occurred in only about 5 per cent of the women's dreams included in our normative tables.[8] If a difference this significant could be found with just the category of human characters, it should be possible to amplify the differences between "pregnant" and "nonpregnant dreams" by constructing an "infantocentric" scale which would also score mention of young animals, maternity wards, obstetricians, delivery

rooms, cribs, bassinets, diapers, high chairs, rattles, baby carriages, and so forth. These elements are quite direct or primary references related to the act of giving birth to and taking care of children. One could possibly also include secondary or derivate references to pregnancy such as budding trees and blooming flowers, or mention of things increasing in size and weight or appearing larger than their usual dimensions.

Such a scale could then be used to score the dreams of a woman throughout her pregnancy to observe when her scores on the infantocentric scale first increase in magnitude and whether the scores remain relatively constant or fluctuate sharply. One could speculate that the overall infantocentric score might be related to the acceptance of motherhood and might be predictive of postpartum adjustment to the motherhood role.

The above example illustrates how a new scale might come into existence which would then have its maximum pertinence in research involving similar populations of dreamers. It is also possible that a scale might be developed which could be used with very diverse populations. In examining the references to babies and children in the pregnant women's dreams, the context generally involved the expected birth of the child being carried. The emphasis was therefore on future or anticipated events. Hall has developed a regression scale,[17] and it would not be too difficult to construct a scale involving time progression. Dreams could then be evaluated along a "time regression-progression" dimension to obtain an estimate of whether the dreamer seems more cathected to the past or future. Hall and I have already developed a temporal scale [8] in order to evaluate a dreamer's involvement with time in a more general way.

I have also carried out some analyses on approximately 450 dreams (obtained from nursing students) that were dated with regard to the menstrual cycle.[21] When dreams occurring during the menstrual period were compared to "nonmenstrual" dreams, I found that there were significantly more references to babies and children made during the menstrual period. There were also more temporal references during the menstrual period. Al-

though I have not examined the context in which these baby references appear, it would be very intriguing if an emphasis upon past events were also associated with these dreams. If this were the case, it would suggest that the infantocentric orientation of women at this time might be related to uncon-cious grief over the loss of the potential baby they harbored and whose demise was now confirmed by the menstrual flow.

Another interesting discovery which emerged from the analyses of the menstrual dreams involved social interactions. The usual finding for the dreams of both sexes is that the dreamer is more often the victim of someone else's aggression than he is the initiator of aggression toward others. This was the pattern revealed in the nonmenstrual dreams where the dreamer was the aggressor in only 39 per cent of the aggressive incidents in which she was involved. This pattern switched, however, during the menstrual period and the dreamer was the aggressor in 54 per cent of the cases. The first interpretation which might be advanced for this finding would probably stress the dreamer's irritability at this time, but the explanation is not that simple. When the pattern of friendly interactions was inspected, it turned out that the dreamer took the initiative in proffering friendship to other characters in 40 per cent of the cases during the nonmenstrual nights, but she initiated friendship in 58 per cent of the friendly interactions she was involved with during the menstrual period.

It is possible that these scores reflect an ambivalence that the menstruating woman feels toward others; but, in any event, it is clear that she is more active in the social situations she encounters in her dreams at this time. The combination of scores representing the percentage of initiated aggressive and friendly encounters might therefore be designated as a measure of social activity, extroversion, or dominance.

In the preceding illustration, a dream measure was developed through the simple expedient of combining scores from an existing set of empirical categories in a new fashion that was not part of the original scoring format. It is also possible to devise measures by further subdividing existing empirical categories.

In the same way that it was fruitful to divide the characters category and to look at just the frequencies for baby and child characters, I found that it was also very revealing to focus upon the animal characters in dreams.[18]

I began by examining two thousand dreams from adult males and two thousand dreams from adult females. There were some significant sex differences in the types of animal figures appearing in these dreams. Women dreamed more often of dogs and horses as well as other mammalian species, while males dreamed more often of birds and snakes and other nonmammalians. The percentage of dreams containing animal figures was identical, however, for both sexes: 7.5 per cent. I next examined over 450 dreams from children aged four to sixteen years. The percentage of animal dreams for the four-year-olds was 61 per cent, and the percentage figures for each of the subsequent age groups, arranged in two-year groupings, was 39, 28, 24, 22, 16 and 9 per cent. The rank order correlation was a perfect −1.0. As chronological age increased, the percentage of animal dreams decreased.

Heinz Werner [23] has set forth the thesis that there is considerable similarity between the levels of cognitive complexity shown by children and "primitive" groups in their employment of symbols. This would lead to an expectation that the dreams of primitive groups should show some similarities to the dreams of children. When I examined approximately 250 adult dreams from Australian aborigines, South Pacific Islanders, and North American Indians, I found that they all showed exceedingly high percentages of animal dreams, ranging from 23 to 51 per cent, with the highest figure being obtained by the Yir Yoronts, an Australian aborigine group.

If one were inclined to speculate about the significance of animal figures in dreams, the notion that they may represent a less-differentiated form of cognitive structure would seem a worthwhile one to entertain. Groups displaying presumed behavioral or emotional immaturity would be expected to show a higher percentage of animal dreams than other more mature groups would. The only opportunity I have had to validate this

speculation was with the dreams of the nursing students. They had turned in information about their menstrual histories and I divided them into three maturity groups on the basis of when they had reached menarche. Those reaching menarche by age eleven or younger had the lowest percentage of animal dreams, those reaching menarche at the "normal" age of twelve had an intermediate percentage, and those reaching menarche at age thirteen or higher had the highest percentage of animal dreams. Other more pertinent tests of this hypothesis will suggest themselves to the interested researcher.

My purpose in reviewing these studies has been to point out in very concrete terms how a dream investigator goes about fashioning his tools. The scales I have described are not theoretical, in that they were not derived from a particular theory of personality; but neither are they strictly empirical. They represent refinements or modifications of simple or "theoretically neutral" categories so that they now have a semitheoretical cast to them.

Let me continue in this vein of using concrete examples to attempt to emphasize some of the other issues which Hall raises in his chapter. He indicates that categories can be simple or complex and refers to Kenneth Colby's study, entitled "Sex Differences in Dreams: A Contribution to the Masculinity-Femininity Problem," [6] as one in which simple categories were followed.

Colby's contribution was to devise a list of 752 separate words and to compare the frequencies of their occurrence in male and female dream reports. He found only five words which significantly differentiated between the sexes in both his patient and normal groups. These words were *wife*, *husband*, *vehicle travel*, *auto*, and *hit*. Since he was relying upon the 5 per cent level of significance, he should have located at least thirty-seven words that statistically separated the sexes strictly on the basis of chance expectation alone.

His results are in marked contrast to those I reported at the 1966 APSS convention.[19] I made use of the normative tables that Hall and I had constructed based upon the application of

our scoring system to dreams of five hundred males and five hundred females.[8] There were significant differences between the sexes on practically every scale in our system. There are many subcategory differences in the types of settings, objects, characters, social interactions, activities, and modifiers that are reported by men and by women.

Why was Colby so unsuccessful in his approach? The answer lies in his narrow, atomistic method of scoring. He did not attempt to include synonyms or related types of elements. For example, Colby treated each item of clothing as a separate entry instead of combining them into a general clothing category such as we employ. Had he done so, he would probably have found, as we did, that women have twice as many references to clothing as men do.

It is also possible to lean in the opposite direction and score dreams in too global a fashion. Although the masochism scale that Beck and Hurvich [1] have published is a model with regard to listing examples of scorable and nonscorable instances of masochistic components, only one overall score is given to the dream. It is either a masochistic dream or it is not. Although Dr. Beck has found that the scale differentiates between depressed and nondepressed patients,[2] it is my feeling that he could probably obtain even more clear-cut differences if his masochism score were a cumulative one that consisted of a tabulation of the number of separate masochistic elements present in each dream.

Another important methodological problem to which Hall directs attention is one involving the use of discrete versus scaled scores. It is almost impossible, on psychometric grounds, to justify a weighting system for dreams, or, I might add, for any test of personality. For example, the most widely used and successful objective test of personality, the Minnesota Multiphasic Personality Inventory (MMPI), does not have any provision for weighting of answers.

I would therefore not find myself in agreement with Dr. Sheppard's approach [16] or the approach used by Dr. Whitman and his colleagues [24] because they both employ a weighting

scheme. In scoring a dream for Sheppard's hostility scale, a judge would give one point if the dreamer is the victim of hostility, two points if his wife is the victim, four points if his dog is the victim, and eight points if his car is the victim. In a similar fashion, one, two, four, or eight points are awarded for the aggressor. It is theoretically possible that a dream could receive a maximum hostility score of eighty-nine points in her system if all the subcategories were present. In Whitman's system, one point is given on the dependency scale if partial reliance upon another individual is mentioned, but six points are given if there is a specific reference to food or eating. I just cannot subscribe to the idea that mentioning a sandwich shows six times as much dependency as accepting a helping hand from another.

The next issue dealt with by Hall is the problem of units. Unless the investigator pays heed to this problem, he may be misled in the emphasis he gives to his results.

In a recent paper, Langs [12] made a study of the dreams obtained from twelve patients with hysterical character disorders, twelve paranoid schizophrenics, and twelve psychotically depressed patients. He reported several statistically significant differences among these groups and on the basis of these differences made inferences about the dynamics displayed by these clinical groups. Three of these differences were that, in comparison to the depressed groups, the hysterics had more mention of nonfamily members, made greater use of the mouth, and perceived the environment as more harmful and destructive. I would offer the hypothesis that if more dreams were obtained from these two groups, it could be shown that the hysterics have more family members, make greater use of the feet, and perceive the environment as more friendly and supportive than the depressed patients do. This prediction is not made on the basis of any astute clinical knowledge of these groups but rather on observation of another bit of evidence contained in Langs' tables of results. Among the hysteric patients, seven out of the twelve had dreams longer than 60 words, while only one out of the twelve depressed patients had a dream as long as 30 words. It is axiomatic that any given dream category will generally

become more frequently represented as the length of the dream increases. It thus becomes crucial to correct for length of dream reports in some cases, while in other cases, it may be necessary to correct for incidence of characters. The greater the number of characters, the greater is the likelihood that any given subgroup such as family members will appear. Similarly, the greater the number of characters, the greater is the likelihood that some type of interpersonal interaction will occur.

My predictions above, based solely upon length of dream report, concerning the type of content which would also show up in hysteric dreams would have to be limited to the type of hysteric inpatients that are seen at Bronx Municipal Hospital Center. I have collected several hundred dreams from psychiatric inpatients at North Carolina Memorial Hospital and I found that the shortest dream reports were obtained from hysteric patients.[20] This difference in findings is probably attributable to the difference in techniques used to classify patients. Diagnostic evaluation, in Langs' study, was made by the resident treating the patient, and the diagnosis was confirmed by consensus at a staff meeting. My classification procedure relied upon the MMPI. In order to be labeled as a hysteric, the patient had to obtain his highest score on the Hysteria scale; this score had to be significantly elevated (i.e. a T score over 70 points) and the elevation on the Hysteria scale had to be at least ten T-score points higher than the scores on the Depression, Psychopathic Deviate, and Schizophrenia scales. Other workers may not approve of my criteria for identifying hysterics, but they would not have any difficulty in classifying patients in exactly the same way that I did. My system may possibly have questionable validity, but its reliability of classification would be unquestionable.

This brings us to the last major methodological point that Hall focused upon—the issue of reliability. This has been one of the most neglected topics in content-analysis studies. Too often, the investigator fails to report any reliability indices for his dream scales or he simply indicates that reliability was satisfactory. Not only is it necessary to state some quantitative

index of reliability, but it is also imperative that the investigator report explicitly and specifically just how the reliability figure was obtained and what units of judgment were employed.

Dr. Hall and I, in the chapter on reliability in our book,[8] present some hypothetical data for aggressive scores that could be obtained if two judges were independently scoring the same set of dreams. We then show how percentage of agreement figures for the judges could be reported as 100, 91, 83, 60, 10, 5, or 0 per cent depending upon what we choose to define as scoring agreement for the judges. This should indicate why it is almost meaningless to report some statement such as "the judges agreed in their scoring of aggression in 83 per cent of the cases." It is necessary to state exactly what task the judge was given and what constituted an instance of agreement.

I hope that my approach of referring to specific studies, scales, and investigators will have served to translate some of the abstract issues involved with content analysis into practical concrete illustrations that can now become a basis for discussion. On each occasion, I have attempted to pinpoint what aspect of the scale I have found myself in disagreement with, and have offered what, in my opinion, was a more appropriate solution to the problem under examination. I trust that my fellow contributors, Drs. Sheppard, Whitman, Beck, and Langs will accept my remarks as constructive criticism and as beginning points for an expected dialog that should lead to mutual clarification and understanding.

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Chapter 10

Home Dreams Versus Laboratory Dreams

Home Dreams are Better

BILL DOMHOFF

WHEN Calvin Hall and I first learned in detail about what is still fifteen years later referred to as the "new" dream research—which employs behavioral and physiological indicators of dreaming in a laboratory setting—we were extremely interested. Perhaps, we thought, this would give a much-needed spark to the study of dreams, which after all had not gotten much beyond the epochal work of Sigmund Freud and his most creative followers on this particular subject—Carl Jung, Wilhelm Stekel, and Geza Roheim. At the very least, we hoped, the finding that everyone has a minimum of four to six dreams per night (I say minimum to allow for the finding of dream-like NREM mentation, which casts doubt on the idea that we know anything about the physiology of dreaming) meant a breakthrough in the collection of dream content and hence more material for our favorite type of dream research—quantitative content analysis aimed at cracking the symbol barrier and unmasking the unconscious in ways acceptable to the critics of clinically inspired psychodynamic psychology.

However, even though we were pleased, we were also somewhat apprehensive. After all, Hall had accumulated about ten thousand "home" dreams (defined as dreams remembered sometime during the day and written down by students, friends, psychoanalysts, cooperative mothers of young children, and anthropologists) and a long bibliography of research articles based upon various probes into this mountain of data. What

was the status of these spontaneously recalled dreams in light of the fact that everyone has more dreams in a single night than most people remember in the space of a week? Were the "old" findings "representative" of this larger dream world that had suddenly opened to us? The question was not a life-and-death matter, as you well know, because remembered dreams remain as significant and rich psychological data even if they should prove to be unrepresentative of all dreams. But the question was still there. After all, everyone likes to have his findings generalized to the greatest possible relevance and significance.

At any rate, our desire for more and better samples of dream content, and a vested interest in the much-studied file of ten thousand dreams, led to a detailed consideration of the relationship of "home" and "laboratory" dreams. In retrospect, and here I refer to myself, most of our expectations and concerns were either overoptimistic or overwrought, but it was only in the process of struggling with the issue that we came to this rather mundane conclusion. We have returned by and large to our old way of studying dreams reported to us from waking memory, but with two positive benefits from our adventures in the sleep laboratory that made it well worthwhile:

1. The satisfaction of knowing something empirical about the relationship of home and laboratory dreams.
2. The detailed dream-content scales that were developed over an extended period by Hall and Robert Van de Castle [4] in response to the challenge of making a study of dream content that would be as rigorous and scientific as the laboratory-based methods which generated the new raw material. In our case, at least, the new dream research did give an impetus to our work, inspiring the development of better quantitative methods of scoring dream content.

What, then, were the results of our studies of home and laboratory dreams which led us to give importance to the new dream research for the general boost it gave us rather than for any of its specific findings or methods? First, very simply, that what differences there are make home-reported dreams more

interesting and valuable *for our kinds of questions.* Second, and less simply, there is no easy way to decide among various possible interpretations of these differences. We have data and arguments that take us just about as far as we think we can go, and we are reasonably satisfied that we have some understanding of the variables involved. If some workers are not 100 per cent satisfied, well, neither are we, and we look forward to additional results from other laboratories on the relationship of laboratory dreams to home dreams. In the meantime, I think a brief recounting of what we have done will make it understandable why we are somewhat doubtful of much more payoff for content analysts in researching this problem.

Our first comparison of home and laboratory dreams was planned in general by Hall and me and carried out primarily by me on dreams collected in Joe Kamiya's laboratory at the University of Chicago.[2] Kamiya's dream-content data were gathered as a rather minor part of a much larger investigation which was one of the first to replicate the Aserinsky-Dement-Kleitman findings on the behavioral and physiological aspects of the sleep process. It led to one of the most lucid and thought-provoking discussions of this new research, including the controversy over NREM mentation.[6]

With due regard for methodological considerations, which are recounted along with other experimental details in our already-cited research report, we compared 120 home dreams from twelve male subjects with the same number of their laboratory dreams drawn equally from the first three REM periods of the night.* These two sets of dreams were scored, with minor changes and additions, by means of the first versions of the later-to-be-refined Hall-Van de Castle scales. The major finding was that there were more sexuality and misfortunes-aggressions in the home dreams. Laboratory dreams, on the

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* NREM reports were not compared with home dreams, but there is no reason to believe they are more dream-like than REM reports. If anything, the opposite is the case; so conclusions based upon REM dreams should hold for NREM dreams.

other hand, had more characters, more elements such as writing material and money that seemed to be related to the experiment, and more bizarre elements. One other interesting finding, in light of the necessity to explain these differences, was that dreamers were more likely to be involved in aggressive interactions in home dreams while in laboratory dreams they were more likely merely to witness aggressive interactions.

There are several weaknesses that might be ascribed to this first attempt, but we will not discuss them in any detail due to the fact that a second study which did not have these potentially vitiating conditions obtained essentially the same results. Here we will note only two of the most important of them.

First, no correction was made for the length of the dream reports. Not that this is an unarguable omission; I for one prefer "the dream" or "number of characters" as a unit because number of words really stacks the deck against the interesting material sometimes embedded in the redundancies and detailed descriptions of objects, settings, and activities in laboratory reports, but nonetheless such an analysis could have been included. What makes it a minor point is that differences in length manifestly favored the laboratory dreams, meaning that any correction for length would only increase the differences which make home dreams more interesting. A second possible criticism of this investigation which should be mentioned here concerns the fact that its statistical measure compared two groups of dreams—home and laboratory dreams—rather than individual subjects under home and laboratory conditions. While it controlled for individual differences among dreamers by having each person contribute an equal number of dreams to both samples, it did not control for the fact that a few individuals may have reacted quite differently to the two conditions and thus produced the overall group difference. While this may seem unlikely in a sample where no one of the twelve subjects contributed more than 10 per cent of the 120 dreams, it is still nice to know that similar results were obtained in a later study

which compared each individual's performance under the two conditions.*

As indicated in the previous paragraph, what makes me feel comfortable in reporting the results of our investigation is their similarity to the findings of a more extensive research project reported by Hall and Van de Castle.[5] Their study is notable first of all for the great investment of time and energy over a three-year period in answering essentially this one question about home and laboratory dreams, not to mention a relatively large subject sample—fifteen males. It was done in a spacious house outfitted especially for EEG-based studies of dream content. The subjects were chosen for their regularity of habits and apparent normality from job applicants to college and university employment centers. They were gradually introduced to the experimental conditions, slept most nights of the week in a room that was their own for the duration of their part in the experiment, and were not extraneously bothered with the leads from a great array of physiological measures. In short, all those conditions which, psychologically speaking, might make the laboratory a trying place in most sleep-dream studies, were not present in the Hall-Van de Castle setup. It is for this reason, given the similarity of the findings of the two studies, that we did not bother to discuss all the laboratory-based factors which could have accounted for our finding that home dreams are spicier.

Hall and Van de Castle collected their laboratory dreams by two different schedules—one of a single awakening per night and one of multiple awakenings each night—in case the many awakenings per night in most laboratories led to prosaic dreams. However, dreams collected by either method (196 "single"

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* We also studied the home and laboratory dreams of female subjects. In the small quantitative study, hampered by meager reporting on the part of most subjects, a comparison of 51 home and 51 laboratory dreams from six subjects turned up a statistically significant difference only in hostile-violent elements. There were three sexual acts in the home sample; none in the laboratory sample. However, a qualitative comparison of all the home and laboratory dreams for the most productive female subjects suggested the same differences found in the male sample.[1]

dreams, 273 "multiple" dreams) were more like one another and less like home dreams. As in the Domhoff-Kamiya study, the home dreams contained more of what is interesting.* To mention the most important of the differences that distinguished home dreams from both single and multiple laboratory dreams:

1. Home dreams had a greater proportion of aggression (aggression divided by characters) than single or multiple laboratory dreams.
2. Home dreams had a greater proportion of physical aggression than single or multiple laboratory dreams.
3. Home dreams had a greater proportion of sexual interactions than multiple laboratory dreams.
4. Home dreams had a greater proportion of misfortune than single or multiple laboratory dreams.
5. Home dreams had a greater proportion of castration anxiety than single or multiple laboratory dreams.
6. Home dreams had a greater amount of aggression, friendliness, sex, success, failure, misfortune, and good fortune than single or multiple laboratory dreams—the empirical base for the earlier claim that home dreams are spicier and more interesting than laboratory dreams.

In general, the findings of the two studies are very similar despite different experimental conditions and methods, so only a word or two need be said about the differences. First, the Domhoff-Kamiya finding of more characters in laboratory dreams was not replicated, but that is readily conceded because Hall and Van de Castle divided characters by words and we did not. I am sure such a procedure on our part would have brought the findings into line, for the Domhoff-Kamiya laboratory dreams are obviously longer than the home dreams. The

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* It also should be noted that in the Hall-Van de Castle study the 264 home dreams were collected before, during, and after the subjects' one-month stay in the house-laboratory, thus obviating any potential criticism of the fact that most of the Domhoff-Kamiya home dreams were written down during the approximately ten-week period during which the volunteer was a once-a-week subject in Kamiya's laboratory.

same might be said about the failure to replicate the finding of a greater number of bizarre elements in laboratory dreams. In our study, I counted the total number of bizarre elements in each sample, without regard to whether more than one appeared in any one dream, and divided by the number of dreams. In the Hall-Van de Castle study, the number of dreams with at least one bizarre element was divided by the number of dreams, a proportion which was in turn made more infinitesimal by dividing by the average number of words in the dream reports. This disparity in method of analysis almost insured a discrepancy. One loads the dice in one direction, the other in the opposite direction. However, it is also possible that the less threatening atmosphere of the Hall-Van de Castle laboratory, as suggested by fewer dreams with laboratory references, may have produced this discrepancy, but I do not want to go into that problem at this time.

How are we to account for the differences between samples of home dreams and samples of laboratory dreams as reported in both studies? This is by no means an easy problem to solve, although possible explanations are immediately obvious. When I first discussed this question in 1962, I emphasized three possible factors: selective recall of home dreams, the inhibitory effect of the laboratory, and differences in the method of reporting (home dreams being written, laboratory dreams being spoken into a tape recorder, usually with the experimenter present).* At that time, I gave more weight to the possible inhibitory effects of the experiment, using the high percentage of laboratory elements, the lesser amount of sexuality, the greater number of witnessed (as opposed to participant) aggressions, and the similar findings (based upon psychoanalytic interpretations) by Whitman *et al.*[9] as the main empirical props for my emphasis. However, I was not unaware of the possibility of

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* In our study we also noted our lack of REM IV and REM V reports (due to short sleep times among Kamiya's subjects) as a possible factor, but this need not be considered because of the inclusion of such reports in the Hall-Van de Castle study, as well as their finding of no quantitative content differences from REM period to REM period.

selective recall at home for aggressive and sexual dreams, the ultimate of which I noted to be the nightmare and wet dream that are probably a good part of the basis of folk and everyday interest in dreams. On the basis of Hall-Van de Castle's findings in a rather benign setting where threat seemed to be at a minimum, the rationale for this emphasis has been challenged somewhat, and it may be that selective recall or method of reporting should be given more weight. All in all, though, the best we can say is that the picture is still not entirely clear. With that overall evaluation in mind, we can consider the various studies relevant to understanding this problem.

In addition to the Hall-Van de Castle findings in a seemingly nonthreatening situation, there is one other laboratory study which would point in the direction of the selective-recall hypothesis for understanding the differences between home and laboratory dreams. This is an analysis by Hall of data collected on a single subject in the Zürich laboratory of C. A. Meier.[7] This particular subject recalled 138 dreams from awakenings in the laboratory over a period of forty-five nights, but remembered only 88 of these same dreams in the morning. While this only indirectly gets at our problem, it is nonetheless interesting to see what factors are related to morning recall of night-reported dreams. These factors are those that would be stressed by classical memory theory—recency, intensity, and length. For example, longer dreams from later in the night are better recalled than shorter dreams or dreams from earlier in the night; while dreams remembered from the middle or early periods of the night are more likely to be longer or more intense than those that are forgotten. Although the recency factor does not give us a selective content sample if Hall and Van de Castle are right that there are no content differences from REM period to REM period, the intensity factor certainly does.

Before the idea of selective recall via intensity is pushed too far in accounting for home and laboratory differences, there are two other studies that must be considered. The first is by Schonbar,[8] the second is an unpublished study by this author. They give a somewhat more complex picture of the determinants of home-dream recall.

Schonbar asked forty-one female and four male graduate students in education (aged 22 to 55 years) to keep dream diaries for four weeks, writing down each day any dreams remembered, along with certain other information—judged time of occurrence of the dream, whether the dream awakened them, and feelings during and after the dream. She received 296 dreams, ranging from one to eighteen per person, which was not quite 5 per cent of the number of REM dreams estimated to have been experienced by these subjects during the twenty-eight-day study. She divided her subjects into two groups, those above the median in recall frequency and those below the median in recall frequency; the first group reported 213 dreams, the second group only 48 dreams. (Seven subjects who recalled 5 dreams, the median number of dreams, were omitted from the study.) Her first finding was that neither group judged that they remembered more dreams as occurring right before a period of wakefulness than as having preceded a nonwaking period. This suggests that we remember many dreams which do not immediately awaken us, a finding we will second in a moment when we present the results of our own study. Her second general finding was the differing recall patterns of good and poor recallers. Good recallers claim to remember dreams from all times of the night, and their dreams are more likely to be emotionally charged and unpleasant; poor recallers claim to remember most of their dreams from right-before-morning awakening, with more of their dreams being emotionally neutral or mildly pleasant than those of good recallers. For the low recallers, at least, the intensity factor does not seem to be very significant.*

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* For those who think that an *intensity factor* in selective recall contradicts a psychoanalytic theory of repression, it is interesting that Schonbar uses Freud's theory of dreams as the guardian of sleep to predict that "remembered dreams might be expected to be associated more often than not with emotional overtones, and, because of the conflict, with unpleasant emotions more often than pleasant ones. Dreams which awaken the dreamer are predicted to be more frequently accompanied by feelings of anxiety than dreams which do not." This is because dreams that are re-

My own unpublished study, conducted on the first six male and first six female undergraduates with telephones in their homes who reported from the college employment office, was concerned with a broader range of correlates of everyday dream recall. In this study, subjects were promised a nominal sum to observe their dreams: one week of telephoning them to a "tape-recorder answering" device, one week of writing them down. It was emphasized that the subject should record the recall right away, and it was hoped that the telephone method would make this possible even for night awakenings. After recording the dream, the subject was supposed to answer a series of questions concerning the correlates of the dream recall. They concerned the time, location, mood, thoughts, activities, and number of companions at the time of recall. Subjects were also asked their opinion as to why they recalled the dream, and to search for links between the dream and any specific events that may have lead to the recall.

The study is merely suggestive because most of these purposely unscreened subjects did not report many dreams, although all claimed to be at least reasonably good recallers. Nor did we press them to perform, fearing "the demand characteristics of the experiment." This may have been a mistake, as several subjects may have been less than conscientious, suspecting they would be paid for the most minimal performance. At any rate, our study led to thirty telephoned reports and twenty-seven written reports. Two of the twelve subjects reported no dreams at all (one coming by regularly with great apologies,

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membered or which awakened the person are "failures" in that repression was not able to operate successfully; the impulses seeking discharge were too strong for the defensive forces. As noted, her predictions for emotional overtones and unpleasant emotions were correct for good recallers but not for poor recallers. As for anxiety dreams being associated with awakenings, this was true for the good recallers, but could not be tested with the poor recallers due to small frequencies. However, Schonbar is quick to point out that even most dreams that awaken the person are not associated with anxious feelings, so her predictions from Freudian theory are perhaps not the whole story on night awakenings.

the other uncommunicative), and two others reported only one. Add to that two subjects who reported two and three telephoned dreams respectively before dropping out, and we were left with six subjects who turned in both written and spoken dreams. They accounted for twenty-three of thirty telephoned dreams and all twenty-seven written dreams.

As might be expected, most of the night dreams were remembered immediately upon awakening or shortly thereafter (70%). (These figures do not include reports of 4 telephoned nap dreams, which were also remembered immediately upon the subject's awakening.) In almost all of these instances of morning recall, the subjects reported no specific cues or thoughts that might have led to recall of the dream. Thus, it seems likely that, as in Meier-Hall's one-subject study, recency is an important factor in dream recall. Contrary to what we expected, only two of our reports (4%) were from night awakenings, and both of these were from the same subject. In this sample at least, dreams that awakened the subject were very rare. As for recall in the late morning (6%), afternoon (14%), or evening (6%), it seemed to be related to one or both of two factors. First, minimal external cues seem to suddenly bring back dreams in which the external cue that triggered the dream memory may play only a small part. Second, nonmorning dream recall seems to occur when the dream memories are in some way linked to thoughts and associations the person is having in a relaxed, sometimes daydreamy mood; often, as might be expected, he is alone.

Let me give some examples of each type. A male subject was talking one evening with his girlfriend about the movie they were going to see when he suddenly remembered a dream from the night before in which he had been talking to Peter Sellers. The whole dream was then available to him in considerable detail, including the fact that he had told Peter Sellers he was engaged to a male friend of Sellers. (This was the third and last dream from that subject.)

Another male subject was telling a friend about his car when he suddenly remembered a dream in which the paint was peel-

ing off the car. In this case the recall was very fragmentary, consisting of two short images.

A female subject was about to sit down in chemistry class when she spotted a friend and suddenly recalled in detail a dream about a person's supposed failure in the chemistry laboratory. Another time this same subject was watching a television ad about skiing which brought back a skiing dream.

Examples of internally triggered recall are as follows: A female subject was sitting alone studying when her mind wandered to a recent date and the movie they had seen—suddenly she remembered a dream about a monster trying to get her, without, I might add, seeing any connection with the male escort. Another female subject was daydreaming about getting married when she vividly recalled a complicated dream in which she was a housewife.

A female subject from whom I have not drawn any previous examples presented a case where internal and external cues combined to produce an afternoon recall. Her report, phoned in immediately, began as follows:

> My code letters are GG. It's 1:15 Sunday afternoon and I was doing my homework. I've been sitting in the sunshine, but the sun is moving and so it's getting to be half sun and half shade in my chair, and I started getting cold, and when I got cold I started thinking about the trip I'm going on in two weeks with the Photo Club, and while I was thinking about the trip, then I happened to remember the dream I had last night. . . .

But the factors of external cue, relaxed state of mind, and being alone are best summarized in the following early-evening recollection, the only dream reported by this male subject:

> I'd come home and I was relaxing and sitting around. I lit a cigarette and all of a sudden I remembered that this is what I'd dreamed about [burned his fingers lighting a cigarette, then it burned down and burned his fingers]. I wasn't thinking about anything in particular at the time. I was kind of relaxed and sitting alone. . . . I was relaxed I think for the first time today.

I realize that much of my own recall data is anecdotal in nature, but I think it is worthwhile for the point it makes:

recency, length, and intensity are not the only factors in dream recall. Simple everyday external cues and internal associations also may be important, and such factors give us some nonsexual and nonaggressive dreams. (It must be kept in mind that only 5 to 15% of adult home dreams have sex references, 40 to 50% have aggressive references.) In fact, combining these "cue" and "associational" factors with length and recency, I would bet that spontaneously recalled dreams comprise a fairly representative sample of typical dream life. This is not a perfectly representative sample because of the biasing factor of intensity, not to mention the relatively unexplored factor of psychodynamics,[10] which is probably even more important in the case of people in psychoanalytically based psychotherapy.

If the Hall-Van de Castle conditions were so benign, what reason is there for still believing that the experimental situation has an inhibitory effect on normal subjects not being studied with the methods of depth psychology and/or psychotherapy? First, the very, very low instance of overtly sexual dreams and wet dreams: we are under no illusions about the frequency of overt sexual dreams at home, for they seem to be very few and far between, but the wet dream incidence in young adult males seems to be higher than the one or two reports of this occurrence from hundreds of laboratory nights. Secondly, the differences in the nature of aggressions is suspicious—witnessed instead of involved in our study, verbal instead of physical in the Hall-Van de Castle study. Such results suggest a little more vigilance on the part of the censor, a capability that should not surprise us in the light of recent experimental findings in the sleep laboratory on the discriminations and judgments a person can make while asleep. To be asleep is not to forget or be totally unaware of your situation.

Just as studies of everyday recall give us further insight into the importance of selective recall, so it is hoped that studies can be done in the laboratory which are concerned with its possible inhibitory effect. When Foulkes[3] emphasizes selective recall at home over the inhibitory effect of the laboratory and notes that "the difference in sampling conditions between home and

laboratory dream collection renders the data somewhat ambiguous," he is betting that an experiment something like the following will show little or no difference between home and laboratory dreams:

> Since laboratory methods of REM detection cannot be taken into the home without making the home a laboratory and thereby vitiating any comparison, the only means of equation for method would seem to be bringing the home methods into the laboratory, i.e., acting as if your physiological recordings did not exist and letting the subject wake himself up whenever he's ready, letting him write down his own dream (or record it, or whatever he did at home), and then going into his room to get him up. This method in the laboratory may mean several nights of no dreams for every one that produces a dream, but this is likely to be the way it is at home as well. (Foulkes, personal communication.)

While Domhoff and Kamiya, and Hall and Van de Castle have already made the same suggestion, I no longer think it gives any final answer in and of itself, unless the subject expects to be and is sometimes awakened; for by removing the expectation of being awakened unexpectedly to report a dream, the factor most likely to produce vigilance is being removed. If subjects in a laboratory study who knew they would not be awakened were to report dreams similar in content to home dreams, it would only show for sure that the equipment, setting, and method of reporting are not inhibitory factors. Selective recall is not to be preferred as an interpretation because psychological vigilance is absent—just as it supposedly is when we are dreaming at home.

Although the experiment of collecting spontaneously recalled dreams in the laboratory under conditions of psychological vigilance has not been explicitly carried out, interesting data on it are contributed inadvertently by the Hall-Van de Castle study. Eleven of their subjects either awakened spontaneously during the night and recalled a dream or remembered a dream in the morning that they had not been awakened to report. Hall and Van de Castle called these fifty-seven dreams "spontaneous dreams" and compared them quantitatively with single laboratory dreams and home dreams from the same subjects.

Although there were not quite as many differences from home dreams as we saw earlier with single and multiple laboratory dreams, it was concluded that spontaneous dreams are "more like other laboratory dreams than they are like home dreams."

It might even be possible to approach this problem by studying the dreams of subjects who have been awakened at home. Subjects could be monitored at home via telemetric equipment or the simple amplification of respiration, and then called on the telephone and asked to report. It would discount selective recall at home if that sample resembled ordinarily recalled home dreams, at the same time implying that psychological vigilance was not operating despite the knowledge one might be called. Unfortunately, finding the usual types of differences as between home and laboratory dreams would not resolve anything, for such differences could be due to either "psychological vigilance" in the awakened-at-home sample or "selective recall" in the sample of ordinarily collected home dreams. In short, it is not easy to rule out the possibility of psychological vigilance if the subject knows he is going to be awakened. The only way to beat psychological vigilance, perhaps, is to suddenly some night descend via telephone or doorbell-ringing on a representative sample of innocent, unknowing victims and see if they can be convinced to tell their dreams for the good of science and humanity. I am sure there would be some interesting exchanges and, if the quantitative analysis of this sample compared favorably with the Hall-Van de Castle norms for home dreams, the notion of selective recall would be dead as regards the dreams typically recalled by normal adults. We could say that length, recency, cues, and everyday associations give us a sample of dreams which happen to be psychologically revealing when properly analyzed.

Finally, to return to the possible inhibitory effect of the laboratory for just a moment, it might be that the problem is not psychological vigilance in the sense of fearing to expose oneself, whether to self or others, but the very personal nature of the method by which it is done, namely, speaking into a tape recorder or microphone, sometimes in the presence of an experi-

menter. A small piece of evidence on this problem comes from a one-subject study which extended over a period of forty-nine nights, during which an alarm clock was unsystematically set by one of the experimenters to awaken the subject-experimenter at any and all hours of the night. The subject then reported any recall into a tape recorder by his bed. He also tape recorded dreams remembered in the morning or from spontaneous awakenings during the night. He remembered fifteen dreams from the awakenings by alarm clock, as well as fifteen spontaneously recalled dreams. When these dreams were compared with his laboratory dreams collected one and one-half years later, it was found that "both the alarm awakened dreams and the spontaneous awakened dreams were more like home dreams than laboratory dreams." The results suggest that awakenings under "otherwise natural conditions need not affect the contents of dreams."[5] It must be cautioned, however, that these results are on a single subject, and an intrepid explorer of dreams at that.

In summarizing this discussion of what causes the differences between the home and laboratory samples, we should first of all note that we are probably not forced to choose one or another variable if this problem is as multidetermined as most are. As you can guess, though, my own preference is to emphasize psychological vigilance in the laboratory rather than selective recall. However, if I had to choose for practical reasons one *method* of sampling to use rather than one *variable* to emphasize, I would very definitely choose a home-dream sample for five reasons.

1. It is likely from the Meier-Hall study and our everyday-recall study that recency is a big factor in dream recall. Combined with the Hall-Van de Castle finding of no content differences from REM period to REM period, this factor works to give us a representative sample of dream content.

2. External cues and wandering thoughts seem to trigger off dream recall during the day. Many of these dreams are nonsexual and nonaggressive.

3. The factor of intensity may be working to bias our sample of home dreams, but it does not seem to me that this factor would be as distorting as the possible inhibitory effect of some aspect of the laboratory situation (whether it be equipment, method of reporting, or distaste for sudden awakenings), the major evidence for which is the low incidence of wet dreams and the differences in the nature of aggressions.

4. Spontaneously recalled dreams in the Hall-Van de Castle study were more like other laboratory dreams than home dreams, while the dreams from one subject awakened at home were more like ordinarily-recalled home dreams than his laboratory dreams.

5. I have left until last the most important reason of all for the utilization of home dreams by content analysts, a point that is easily missed if we get too involved in the problems of assessing the relative effects of the different variables on home and laboratory samples. What really matters is that, whichever variable is emphasized in arguments, or is proved to be more important in experiments, the results in either case favor the collection of home dreams for quantitative dream-content studies aimed at furthering our understanding of unconscious fantasies and symbolism. The dull dreams collected in the laboratory may be useful if supplemented by associations and case histories, but they are less useful to those who prefer illuminating waking life from dream analysis to using clinical case histories and free associations to bring "coherence" to dreams (a process which usually assumes the very postulates we are trying to test). For our work, if selective recall is operating at home to give us the more intense and interesting dreams, well and good, for it saves us the trouble of wandering through long, dull laboratory dreams. Or, if the laboratory is making subjects psychologically vigilant for some reason, we might just as well study interviews or TAT protocols because we no longer seem to be tapping the deeper layers of the human psyche which give dreams their unique status as psychological data and provide the main rationale for wanting to understand their contents.

Less harshly, there is no need for dream-content analysts to go to the enormous trouble of studying laboratory collected dreams. Except for studies of such questions as the effects of presleep stimuli on dream content, the utilization of defense mechanisms in the laboratory, and the effects of internal, external, and subliminal stimuli on the contents of ongoing dreams, home dreams are preferable if the object is to learn more about the unconscious and symbolism rather than dreaming as an end in itself. The laboratory is the proper place for studies of the sleep process and its concomitants (assuming that the laboratory situation does not distort the role of presleep and sleep stimuli) and for studies of certain questions concerning dream formation and stimulus incorporation. But the "field"—be it couch, classroom, playroom, or bedroom—is the place for those who wish to study the meaning of dreams and the relationship of dream content to personality and culture. That is why we content analysts say that home dreams are the best dreams.

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DISCUSSION

HAROLD SAMPSON

DR. DOMHOFF'S lively and thoughtful contribution is addressed to these questions: Do dream reports obtained from a subject in the sleep laboratory differ systematically from reports obtained from the same subject when he sleeps at home? What is the nature of these differences? How may we account for them? and, finally, What are the implications of these differences for past and future research on dreams and on dreamers? As Dr. Domhoff has covered most of this ground clearly and well, I will be able to devote the major part of this discussion to the last question, which has importance for getting our bearings in this research area.

Dr. Domhoff has summarized the methods, the methodological issues and problems, and the findings of the only two published studies which provide a systematic comparison of laboratory and home dreams. The original investigation by Domhoff and Kamiya [1] and the very extensive and careful studies by Hall and Van de Castle [4] arrived at essentially the same conclusion: laboratory dreams tend to be more prosaic, while home-dream reports are more dramatic, containing a significantly greater amount of aggression, sex, friendliness, success, failure, misfortune, and good fortune. While these findings cannot be taken as firmly established for all subject samples, all experimental procedures and experimenters, and all methods of content analysis, there is no known contradictory evidence at this time.

Do these differences arise from selective recall? Perhaps we tend to recall spontaneously a relatively high proportion of dramatic dreams, while our laboratory methods facilitate recall of REM dreams, including many which appear to be prosaic. Or, is the inhibitory effect associated with the laboratory such that the dreams produced, recalled, and reported in this situation appear tamer? Dr. Domhoff has shown us that we cannot arrive at any simple definitive conclusion from the available evidence; but we may surmise tentatively that both selective

recall in the home and an inhibitory process in the laboratory do operate to influence the results.

What are the implications of these findings for interpreting past research results or for planning future research strategies? Dr. Domhoff focuses his remarks in this area on the supposed advantages of using home dream reports if one's purpose is to learn more about people rather than about the sleep-dream process and its concomitants. Clearly, the research implications of the findings depend upon the purposes the investigator has in mind. I should like to develop a few of the issues more fully.

I begin with the relevance of the laboratory dream for studying the psychology of dreaming rather than only the psychology of dreamers. As Dr. Domhoff mentioned, studies of the effects of presleep and sleep stimuli or experiences on dream content are conducted most advantageously with laboratory dreams. The immediate advantage of the laboratory situation resides in the reliability with which we may expect to harvest a large nightly crop of dream reports. The possible disadvantage—implicit in the findings reported by Dr. Domhoff—is that inhibitory or other effects of the laboratory are modifying the dreams we collect so diligently. I shall indicate later why I do not consider bias in sampling distinctive to any category of dreams. I should like to emphasize now that studies of the effect of various kinds of presleep and sleep stimuli and experiences on subsequent dream content are—whatever else the experimenter has in mind—studies of aspects of dream formation. They are experimental studies of the ways in which experiences influence our dreams, and the ways in which our dreams deal with and transform our experiences.

Freud [3] in 1900 used the contrasting clinical-restrospective method to investigate dream formation. He began with the end product, the reported dream, and worked backward via the subject's associations to the presumed antecedents of this product, the latent dream thoughts. The method yielded two hypothetically comparable texts of the dream, the manifest and the latent. Freud then reconstructed the path of dream formation by investigating the principles by which the presumed latent

dream thoughts were transformed into the observed dream. Although Freud's method proved very powerful, it depended upon retrospective analysis and was inherently subjective in that two investigators might arrive at differing conclusions. Those with a strong experimental bent have always sought to study the construction of the dream directly by attempting to control systematically some of the antecedent conditions. Maury's original dream experiments in 1860 reflected this experimental interest, as did such other classical studies as those by Poetzl (1917)[6] using daytime tachistoscopic presentation of a picture, and those by Schroetter,[9] by Roffenstein,[8] and by Nachmansohn,[5] using hypnotic or waking suggestion of dream topics. Experimental studies of dreaming have received great impetus from the opportunity to obtain reliably extensive recall of much of the night's REM dreaming. Thus, one very important trend in contemporary dream research, bearing on dream work and the experimental study of dream formation, is critically dependent upon the laboratory dream.

Further, if we wish to investigate how dream life reflects and contributes to the mastery of psychic stresses, real gains may be had from obtaining the more prosaic as well as the more dramatic dreams. In studying the response of the dreamer to stress films, for example, the opportunity for close study of dream sequences is invaluable, and we might get a very misleading impression of the way in which dreams contribute to the assimilation of the threat if we studied only those dreams which happen to persist into waking life as a memorable experience. Here we are dealing not only with a fuller harvest of dreams but with a selective factor. Similar considerations apply to attempts to understand, by combined clinical and laboratory studies of dreams of the same night, the ways in which a focal conflict is sequentially expressed and resolved.

But what about the issues of bias and distortion in sampling? The most striking conclusion we may draw from the two "home versus laboratory" dream studies cited by Dr. Domhoff is that the dream reports which become available to us are shaped by the conditions under which we obtain these reports. The same

conclusion follows from the study by Whitman, Kramer, and Baldridge [10] of which dreams the patient tells and does not tell to his laboratory monitor and to his psychotherapist. Fox, Kramer, Baldridge, Whitman, and Ornstein have found that dreams reported to a male and a female experimenter by the same subject may differ systematically. Must we speak, then, of an endless series of subsamples of laboratory dreams? Clinicians have observed for a long time that reported dreams are influenced by the theoretical persuasion of the therapist, and by the therapist's interpretations, as well as by other factors. In an experimental analog of the effects of therapy interpretations on dream content, I asked two subjects in my laboratory to discuss a proverb just before going to sleep, and then to attempt to dream about the proverb. As an example of what happened, when I asked the subjects to dream about "New brooms sweep clean," one reported a dream about the funeral of President Kennedy, the other dreamt of a flea market in which old items were being disposed of to make room for the new.

I believe the import of all of this is that we must accept the fact that dream reports are complex psychological products *inevitably* influenced by the conditions under which they are dreamed and reported. Dreams are not "distorted" by inhibitory laboratory factors or by selective recall in the home, but rather are *complexly shaped* by these and other conditions. I do not believe it corresponds to empirical reality to conceive of the dream as an isolated, pure psychic event which we can hope to "sample" more or less unbiasedly from some hypothetical population of dreams waiting to appear in future REM cycles. We must accept the implications of much clinical experience and research evidence that *any* sample of obtained dream reports is shaped by both subtle and obvious conditions of our research procedure, not the least important aspect of which is the real and fantasied relation of the dreamer to the investigator.

The *relevant* sampling issue for Dr. Domhoff, and for that tradition of work developed and executed with such persistence, ingenuity, and concern for objectivity by Dr. Hall and his

associates, is *not* (in my opinion) whether home dream reports are in some sense a biased and highly selected sample of a hypothetical dream population. It is rather whether dreams collected by their methods provide a useful and reliable method of drawing the kinds of conclusions about the subject's personality, or about group differences, that they wish to draw. Dr. Hall and his associates have conducted such studies over the years; and Dr. Van de Castle has presented us with additional evidence of the power of these methods. I cannot see how such work is in any way jeopardized by discoveries of just how much more dreaming takes place than ordinarily is remembered. The empirical question of the relative adequacy of home versus laboratory dreams for such purposes may be answered most directly by comparing *conclusions* about the personality variables in question made from a series of home dreams and from a series of laboratory dreams of the same subject. Both sets of conclusions should be compared against independent measures of the criterion variables.

I would agree with Dr. Domhoff that home dream reports can provide a basis for drawing meaningful conclusions about dreamers. I do not, however, agree with his view that the more dramatic dreams—the more directly sexual and aggressive—are necessarily more revealing about personality than the more prosaic dreams. This may prove to be the case in empirical studies but should not be prejudged. Contemporary ego psychology has turned from analysis of more or less universal impulses and conflicts, toward an analysis of character, of defensive processes, of styles of experiencing, and of organizing and communicating experiences. It is likely that an investigation of such aspects of dream reports will require supplementary forms of analyses of the dream data more closely mirroring contemporary modes of analyzing clinical material.

Finally, I would emphasize that Dr. Domhoff's own work, as well as the work he cites, has been pioneering empirical investigations into these complex issues and has highlighted

the crucial importance of the setting and the procedures of our investigations for the contents of the dream reports we obtain.

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Chapter 11

Dream-Content Analysis

EDITH SHEPPARD

THE CURRENT RESURGENCE of interest in the dream, stimulated by electroencephalographic methods of detecting the dream state [2,13] has produced a wealth of newly discovered physiological data about humans and lower animals, and a plethora of studies on the psychological significance of the dream data.

Our ongoing research in dreams has consisted in objective methods of measurement of emotional factors in dreams, ranging from a limited goal of rating the single emotional factor of hostility in manifest dreams as a method of investigating the psychological factors in subjects with essential hypertension as compared to normotensive subjects,[19] to a wider goal of rating various emotional factors in manifest dreams of many different types of subjects from normal to neurotic, psychosomatic and psychotic.[20-23] The present study is an attempt to evaluate the dream scales as applied to the dreams obtained in sleep-laboratory settings.

Dream Scales

The rating systems for manifest dreams used in the current study consist of (1) three scales describing the biologically derived impulses of orality, anality, and genitality and (2) three scales describing the psychologically derived integrative factors of hostility, ego function, and superego function.

Each of the scales, with the exception of the ego scale, is subdivided into two sections: (1) degree of the impulse and (2) mechanisms of defense related to the impulse.

The degree of the impulse is further scored according to (1) intensity and (2) incidence. The mechanisms of defense related to the impulse are classified according to (1) source, (2) object, (3) completion, (4) expression, and (5) primitivization. The ego scale consists of categories describing (1) reality of dream setting, (2) body image, (3) interpersonal relationships, (4) logical structure, and (5) type of problem.

The ideational and imagery content of the manifest dream is scored in context for the presence or absence of the factors described in the categories. The subdivisions of the categories have been assigned arbitrary weights on the basis of degree of pathology presumed. The scores presented in this study have further been computed as the percentage of the total possible score for that particular category. Thus, all the scales except the ego scale may be scored from 0 to 100 percent, while the ego scale may have scores from 1 to 100 percent. The scales, which are constructed to demonstrate type and degree of disorder, follow principles exemplified by a statement of Pumpian-Mindlin: "The crucial thing to be quantified is not energy, but order, that is, the degree of organization of the system. . . . This is because the behavior of the system is determined by the difference between its actual state and the state toward which it is being guided by the inverse feedback of information." [17] Since the use of the scale has been confined to research, normative values have not been determined for the population at large. In this stage of development of the scale, each subject serves as the standard to which he is compared.

Interscorer Reliability

The interscorer reliabilities of the various scales have been tested over the years and the results occasionally published.[21] Our findings agree in general with those published by other investigators employing scaling methods, namely, that raters' scores may achieve sufficient correlation at the same time that each of the raters tends toward a consistent level of scoring probably representative of the rater's own personality.

In tests of interscorer reliability of the present scales, agreement tended to go up with experience and training, but even the degree of skill achieved after quite a brief period of instruction and familiarization appeared sufficient to enable a rater to score dream protocols for research purposes.

Reliability after training, as reflected in correlations of scores of the scale's author with those of our most recent scorer, ranged from .79 for the ego scale to .93 for the orality scale, the remainder of the correlations for the other scales being in the .85 vicinity.

Dream Data

The dream protocols scored in this report were generously contributed by three experimenters in the sleep-laboratory field. Dreams of less than four typewritten lines were eliminated from the scoring and dreams of over one-half a page of single spaced typewritten copy were cut as close to the half-page mark as was consistent with preserving the manifest content of the dream. The dreams were typed and ordered according to a random number series. The dreams were then scored by the author of the dream scales without any identifying data.

Sleep-laboratory Dreams

In the first group of subjects studied, a male experimenter awakened eight of the male subjects and the one female subject to tape record the verbal reports of their dreams upon the appropriate signal from the EEG. A female experimenter awakened one male subject and tape recorded his dream reports under similar circumstances in the same laboratory. Two of the subjects had their sleep sessions on succeeding nights, the remainder of the subjects having at least a week's interval between recording sessions. Seven of the subjects cooperated in two sleep sessions, one participated in three, and two subjects in one night each of sleep and dream recording.

There was a total of twenty subject nights of dream recording during which a total of seventy-nine REM periods occurred in the subjects and a total of sixty-five dreams was

reported. The range of the number of REM periods for each subject was from one to nine on a single night, and the range of dreams reported by each subject was from one to six on a single night.

The longest dream reports were contributed by the two subjects who had their sleep sessions in conjunction with an experimenter of the opposite sex. Dream reports which were almost equally as long were contributed by the two subjects who had their sessions on succeeding nights. The largest number of REM periods and dream reports was obtained from a subject who was a seminary student: nine REM states per night and seven dreams per night.

The subjects ranged in age from twenty-one to thirty-two, and all but one were graduate students. All the subjects had had some graduate education, and three were medical school students.

The sixty-five dreams were scored by the author of the scales in 1962 on an earlier though comparable version of the present dream-rating scale.

Dream Scores: Sleep-laboratory Subjects

The dream scores obtained for the subjects in this series demonstrated a periodic fluctuation on all the scales with the exception of the scores on the ego scale which appeared to be relatively stable. Of the biologically derived scales of orality, anality, and genitality, most of the subjects demonstrated more dreams with genitality scores than with the other two impulses. This finding appears consistent with the age group of the subjects and with our other (unpublished) results of scoring the dreams of college and graduate students.

Some individual differences were also noted in the dream scores obtained. There was a strikingly high degree of disturbance of ego scores in the dreams of those subjects whose sleep sessions had been presided over by an experimenter of the opposite sex. Consistent with the heterosexual experimental situation, the highest scores on the genitality scale were ob-

TABLE I
AVERAGE DREAM SCORES PER NIGHT OF SLEEP-STUDY SUBJECTS IN HETEROSEXUAL EXPERIMENTAL CONDITIONS

Subject	Monitor	No. of Nights	No. of Dreams	Hostil.	Oral.	Anal.	Genital.	Ego
Male	Female	2	7	43	12	10	24	27
Female	Male	2	7	19	8	5	24	27
Male: 8	Male	2	7	21	8	8	8	18

Scores are percent of maximum possible score.

tained by the dreams of subjects studied under these conditions (Table I).

These findings are in agreement with Whitman's [25] description of the unusual amount of sexuality content in the manifest dreams reported by female subjects in sleep-laboratory experiments to a male experimenter.

The dream scores of the two subjects who had participated in sleep sessions on consecutive nights were remarkable for their rise in orality scores in the second night (Table II). This was particularly interesting since orality scores tend to be rather low for this age group.

Sleep-laboratory Dreams Following Presleep Manipulation

A second series of dreams of presumably normal subjects was obtained from paid volunteer subjects in a sleep laboratory where some manipulation of the presleep environment was attempted. These studies were conducted with male subjects who worked at night and came to sleep in the electroencephalographic laboratory in the daytime. This experiment,

TABLE II
AVERAGE DREAM SCORES PER NIGHT OF SLEEP-STUDY SUBJECTS IN CONSECUTIVE RECORDING SESSIONS

Spacing	Night	No. of Dreams	Hostil.	Oral.	Anal.	Genital.	Ego
	1st	3	35	10	6	14	22
1 day	2nd	3	17	21	7	8	24
	1st	3	31	13	15	8	23
1 day	2nd	4	40	19	19	0	28
	1st	3	21	6	8	17	17
1 week	2nd	3	21	6	8	16	23

Scores in percent of total possible score.

which was designed for somewhat different goals than our own, has provided interesting results relating to dream recall [12] and the effects of day residues on dreams.[22]

Presleep Film Stimuli

Each of the three subjects whose dreams were studied in this series had experienced prior to each of six sleep recording sessions one of the following experimental conditions: (1) base-line recording with no presleep stimuli presented except in one case where an attempt was made to suppress eye movements; (2) suggestion session in which the subjects were instructed that they would experience an involuntary raising of an arm; (3) a film about the birth of a baby in which a vacuum extractor was demonstrated and an episiotomy performed; (4) an anthropological documentary film of a subincision rite practiced by an Australian aboriginal group in which naked adult men operated on the genitalia of four boys with primitive instruments (sharp stones and fire); (5) a film travelogue about the Far West; and (6) a film about primates showing a monkey-mother eating her dead baby. The film session was followed by a hypnagogic reverie period. Each subject was requested to give additional details after the reporting of a dream. For some of the subjects, postsleep inquiry periods were held in which the subject was asked for his recollections of dreams, associations to the dreams, and possible connections to the presleep experience. Some of the subjects were asked in postsleep inquiry periods for responses to TAT cards especially chosen for this study.

Dreams and REM Periods

The three subjects in the six sleep sessions had a total of fifty-five REM periods and reported a total of forty-two dreams. Some individual differences were noted in frequency of REM states and dream recall in these three subjects (Table III).

Manifestations of anxiety over the experimental situation, which has been described by several experimenters,[1,4] are ap-

TABLE III
DREAMS AND REM STATES OF SUBJECTS AFTER PRESLEEP STIMULI

Stimulus	*Subject X* REMs	Dreams	*Subject Y* REMs	Dreams	*Subject Z* REMs	Dreams
Base line	4	1	4	3	1	0
Suggestion	4	2	3	3	2	2
Birth film	4	4	3	2	3	3
Subincision film	5	3	2	1	2	2
Monkey film	4	4	2	2	2	2
West film	6	6	1	1	3	2

parent in the low frequency of dream recall and REM states in two of the subjects. The third subject had a reduction in both dream recall and in REM periods after exposure to the subincision film, a reduction which persisted for this subject in his subsequent "post Far West film" sleep session. Two of the subjects had their highest number of REM states and of reported dreams following the suggestion session.

Dream Scores

All three subjects demonstrated changes in their dream scores following their exposure to the various presleep film stimuli (Table IV). Among the consistent trends noted (Tables V, VI, and VII) in the dream scores after the subincision film, all three subjects had their highest genitality scores, and all three had higher hostility scores than after the presumably neutral suggestion session and film of the Far West. Following the monkey film, the most consistent trend was in elevation of anality scores and an increase in orality scores in comparison to the Far West film dream scores. Two of the three subjects had their highest orality scores on dreams reported in the sleep session following the monkey film, and two of the three subjects had their highest hostility scores following their witnessing of the subincision film. Some disturbance in ego dream scores is notable in all three subjects following the subincision film, particularly in comparison to dream scores following the Far West film.

In this study, as we have noted in previous scaling studies of manifest dreams, one of the outstanding findings was the

TABLE IV

PRESLEEP STIMULUS AND AVERAGE DREAM SCORES PER SUBJECT

Stimulus	Scale	Subject X	Subject Y	Subject Z
Suggestion	Hostil.	31	17	32
	Oral.	0	0	0
	Anal.	20	0	24
	Genital.	24	8	22
	S. ego	34	30	16
	Ego	29	17	23
Monkey film	Hostil.	13	31	44
	Oral.	24	38	0
	Anal.	24	38	30
	Genital.	12	9	10
	S. ego	19	20	64
	Ego	32	30	27
Subincision film	Hostil.	25	35	44
	Oral.	9	0	51
	Anal.	14	8	38
	Genital.	27	41	38
	S. ego	18	25	35
	Ego	34	24	50
Birth film	Hostil.	19	18	19
	Oral.	16	0	14
	Anal.	11	9	8
	Genital.	26	34	0
	S. ego	13	34	13
	Ego	20	30	21
Far West film	Hostil.	21	32	32
	Oral.	11	0	0
	Anal.	21	19	0
	Genital.	16	15	34
	S. ego	20	29	31
	Ego	24	19	42
Avg of all stimuli	Hostil.	22	27	34
	Oral.	12	8	13
	Anal.	18	15	20
	Genital.	19	21	21
	S. ego	21	28	31
	Ego	28	24	33

Scores as percent of total possible score.

periodic fluctuation in the dream scores for all subjects on all scales—with the one exception being the relative stability of the dream scores on the ego scale. In general, the dream scores on the impulse scales demonstrate a parallelism between scores on the degree of impulse and on defenses related to the impulse.

TABLE V

PRESLEEP STIMULUS AND INCREMENT OF DREAM SCORE OVER SUGGESTION DREAM SCORES: AVERAGE SCORES

Stimulus	Scale	*Increment Scores*		
		Subject X	Subject Y	Subject Z
Monkey film	Hostil.	18	14	8
	Oral.	24	38	0
	Anal.	4	38	6
Subincision film	Hostil.	6	18	12
	Oral.	9	0	51
	Genital.	3	33	16

Scores as percent of total possible score.

Some individual differences in the subjects' responses were also noted. Subject X had his highest dream hostility and superego scores in the base-line session where some attempt was made by the experimenter to suppress eye movements. These scores were consistent with the low frequency of REM states and dream recall in the base-line and suggestion sessions. Both may be indicative of this subject's greater disturbance as a reaction to the novelty of the experimental situation than his later response to the presentation of presumably shocking film material. Subjects Y and Z had their highest superego scores following exposure to the birth film, with subject Z also having his highest hostility scores after this film. The highest hostility dream scores for subject Z occurred in the dreams reported after watching the monkey and subincision films. Dream scores on the genitality scale for subject X

TABLE VI

PRESLEEP STIMULUS AND INCREMENT OF DREAM SCORE OVER WEST FILM DREAM SCORES: AVERAGE SCORES

Stimulus	Scale	*Increment Scores*		
		Subject X	Subject Y	Subject Z
Monkey film	Oral.	13	38	0
	Anal.	3	19	30
Subincision film	Hostil.	4	3	12
	Genital.	10	26	4
	Ego	10	5	8

Scores as percent of total possible score.

TABLE VII

PRESLEEP STIMULUS AND AVERAGE DREAM SCORES

Stimulus	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Suggestion	27	0	18	16	27	23
Monkey film	29	20	30	10	31	30
Subincision	37	20	20	35	26	37
Birth film	19	10	9	20	20	23
West film	28	4	13	22	27	29

Scores as percent of total possible score.

paralleled the sexual content of the films, with inhibition and projection of genital impulses being noted in the scores of posttravelogue film dreams.

Presleep Film Stimuli Dreams and Erections

In the third series of subjects, sixteen paid male volunteer subjects were studied in a sleep laboratory where electroencephalographic tracings and the state of penile tumescence were simultaneously being recorded. Erection cycles were measured by means of a mercury capillary strain gauge,[9] and verbal reports of dreams were tape recorded. Each subject was studied in six sleep sessions, the first of which consisted of electroencephalographic recordings only, and the second of which consisted of dual recordings of the sleep state and the state of penile tumescence. In the remaining four sessions, each subject had been exposed prior to the sleep session to one of the following four films: (1) birth of a baby with demonstration of vacuum-extractor technique and episiotomy, (2) travelogue film of London, (3) anthropological film of subincision rite performed by an aboriginal tribe on pubescent boys, and (4) travelogue film of the Far West. The order of the base-line sessions and of the presentation of the films was varied from subject to subject. The sleep sessions were for the most part spaced at weekly intervals.

The sixteen subjects ranged in age from seventeen to twenty-six, with 23 as the median age. All but one of the subjects were unmarried; six were college students and the remainder were medical students. Prospective subjects with psychiatric or sleep problems had presumably been eliminated by use of

a questionnaire and intensive interviews. One of the subjects was described on the protocol as an active homosexual.

In the available records of eighty-six sleep sessions, the sixteen subjects had 273 REM periods in which they reported 219 dreams and which were accompanied by erections except for fifty-nine instances. Dreams in the absence of erection occurred in thirty-four instances, and REM states with no dream report and absence of erection in twenty-nine instances. Failure of the subject to report a dream and absence of erection during REM occurred simultaneously most frequently in the sleep sessions following the London film and the subincision film (Table VIII).

TABLE VIII

REMS FREQUENCY IN ABSENCE OF ERECTION AND ABSENCE OF DREAM

Stimulus	*Frequency of REMs*	*No. of Subjects*
2nd session	3	2
London film	5	4
Subincision film	5	5
West film	3	3
Birth film	1	1
Last session, no film	2	1

The records were examined for differences in dreams connected with variations in the tumescent state. From the sleep protocols, it was apparent that five of the subjects had erections with every dream reported. Since these dreams could not yield any information on the question being investigated, they were not scored on the scales. The dreams of two other subjects, whose dream data were insufficient in the nonerectile dreams, were also not included in the scoring procedure.

These three groups of subjects showed an interesting pattern in frequency of REM states in the absence of erection and in the percentage of dreams recalled for the total number of REM periods (Table IX). The subjects who had dreams both accompanied by and in the absence of erection, had a higher frequency of REM states in the absence of erection and a higher frequency of dream recall per REM than the subjects whose dreams were

TABLE IX
FREQUENCY PATTERNS OF REM AND DREAMS

Subjects (No.)	*Dream type*	*REMs* Nonerectile (%)	*Dreams* Nonerectile (%)	Dreams/ REMs (%)
9	Both	26	22	72
2	Insuf. nonerectile	10	8	75
5	Erectile dreams	6	0	65

uniformly accompanied by erection. The group of seven subjects with only erectile dreams or insufficient nonerectile dreams encompassed two camps of subjects with diametrically opposed attitudes toward the experiment. A negativistic attitude was displayed and stated by four of these subjects, and a very positive and helpful attitude was displayed by three of these subjects. The difference in attitude is further confirmed by the higher frequency of dreams recalled for the compliant subjects as compared to the noncompliant subjects (Table X). The one exception may indicate that stated attitudes and behavior may on occasion be thin disguises for basically compliant attitudes.

Dreams Scored

The dreams of this series of subjects that were scored on the dream scales include 107 dreams reported by nine subjects in 174 REM periods where the subjects had dreams both in the presence and absence of erections. The nontumescent state accompanied twenty-four of the dreams, and there were twelve REM periods in which there were both absence of dream recall

TABLE X
FREQUENCY OF DREAM RECALL COMPLIANT AND NONCOMPLIANT SUBJECTS

	Subject	*Nonerectile* Dreams (%)	Dreams/REMs (%)	*Nonerectile* REMs (%)
Noncomplaint				
	BN	7	60	13
	LW	0	50	20
	LV	0	59	0
	WN	0	80	5
Compliant	SW	5	91	5
	HB	22	77	22
	KL	0	78	0

TABLE XI

PRESLEEP STIMULUS AND FREQUENCY OF NONERECTILE DREAMS

Stimulus	No. of Subjects	No. of REMs	No. of Nonerectile Dreams	No. of Nonerectile REMs
Base line	2	11	2	2
West film	3	15	5	9
Subincision film	3	16	3	5
Birth film	7	30	11*	12
London film	2	10	2	3
End, no film	1	4	1	

* 78 percent of nonerectile dreams for these seven subjects.

and absence of erection (Table XI). The "post birth film" sleep session dreams were remarkable for the high incidence of REM states and nonerectile dreams.

Dream Scores for Erectile and Nonerectile Dreams

The most striking finding in the scores of the nonerectile dreams was the occurrence of high superego scores for every subject on every nonerectile dream. (Table XII). The nonerectile dreams also had higher average scores on hostility and anality than the erectile dreams. In addition, in sleep sessions where both erectile and nonerectile dreams were reported, higher genitality scores for the nonerectile dreams were found in the sleep sessions following the two neutral-film presentations; and higher hostility, anality, and ego scores in the sessions

TABLE XII

SCORES ON ERECTILE AND NONERECTILE DREAMS

	No. of Subjects							
Film	Erectile Dreams	Nonerectile Dreams	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Subincision	7		18	16	14	20	17	23
		4	17	16	0	8	40	24
Birth	8		24	12	14	18	23	25
		7	40	10	21	14	21	27
Far West	7		30	16	15	15	25	21
		4	41	9	21	15	38	17
London	7		30	12	15	25	21	25
		2	47	10	10	56	21	16

Scores as percent of total possible score.

following the birth film. The frequency response of the nonerectile dreams appears to be consistent with scores of the nonerectile dreams, the fewest nonerectile dreams being given in response to the subincision film while the highest superego scores were obtained in nonerectile dreams following the same film stimulus.

One subject, who was described as overtly homosexual, reported the least number of dreams for the subjects in the series: five dreams in the three sessions available for study. His dreams also tended to be fairly short in length. This subject's only nonerectile dream occurred in the sleep session after the subincision film. The homosexual subject also had a higher superego score on his one nonerectile dream as compared to the erectile dreams reported in the same session. Moreover, the one nonerectile dream did not score in any other of the scales, a finding suggestive of marked inhibition of other emotional factors.

The one married subject in the series had his two nonerectile dreams following the birth film. These nonerectile dreams had higher hostility and superego scores than the erectile dreams reported in the same sleep session.

Dream Scores in Relation to Presleep Film Stimulus

Following the subincision film, the dreams of four out of seven of the subjects scored high on the genitality and ego scales. The highest average anality scores were obtained in dreams occurring after exposure to the birth film, as were also the highest average ego scores (Table XIII). Five out of eight

TABLE XIII

PRESLEEP STIMULUS AND AVERAGE DREAM SCORES

Film	No. of Subjects	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Subincision	8	19	11	12	21	25	19
Birth	8	33	12	23	24	28	25
London	7	36	14	18	33	27	22
Far West	7	36	17	17	21	31	19

Scores as percent of total possible score.

subjects had their highest genitality dream scores after witnessing the travelogue film of London, and the highest average genitality dream scores also occurred after the London film.

Individual Differences on Dream Scores

Four of the nine subjects were medical students; the remainder of the subjects were college students. In general, the medical students were more prolific in their dream production than the college students (Table XIV). The medical students also reported dreams of a longer average length than did the college students. The only married subject in the study was also a medical student. The lower frequency of dream reports and relatively shorter length of the dream reports of the less sophisticated college students may be indicative of an inhibitory effect of relative naiveté on responses to this type of experiment.

The average dream scores of the college students tended to be lower than those of the medical students for all the film stimuli with the exception of dream scores following the London film (Table XV). The effect of the subincision film on the dreams of the college students was to elevate their superego scores, while the effect on the medical students was to elevate their hostility scores. Following the birth film, dreams of medical students scored highest on anality and genitality, while dreams of college students showed marked disturbance in ego scores. The difference in scoring trends of the medical students and college students may account for the relative lack of strong scoring trends in relation to presleep stimuli seen in the total group.

TABLE XIV

FREQUENCY OF DREAMS IN MEDICAL AND COLLEGE STUDENTS

	Medical Students		College Students	
Film	No. of Subjects	No. of Dreams	No. of Subjects	No. of Dreams
Subincision	3	9	5	11
Birth	4	19	3	9
London	3	12	3	2
Far West	3	10	4	11

TABLE XV
DREAM SCORES OF MEDICAL AND COLLEGE STUDENTS

Film	No. of Students: Medical	College	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Subincision	3		27	7	10	18	19	20
		5	8	10	8	17	23	21
Birth	4		19	13	19	34	26	20
		4	29	7	18	24	21	36
Far West	3		36	14	14	19	34	18
		4	27	14	14	16	20	23
London	3		27	12	19	22	23	22
		4	33	12	12	32	27	27

Scores as percent of total possible score.

The one married medical student had his highest hostility and superego scores following the birth film, the highest genitality following the subincision film, and the highest orality following the London film. This subject had also been born and raised in England. The homosexual college student reported dreams which scored highest in hostility, anality, genitality, superego, and ego following the birth film. His dream ego scores showed a marked disturbance after the birth film. This subject also had a rise in superego scores following the subincision film, which was also the only occasion on which the subject had a non-erectile dream.

Dreams obtained in base line sessions where electroencephalographic and penile strain gauge recordings were taken were

TABLE XVI
SCORES OF BASE-LINE SESSIONS WITH MEDICAL AND COLLEGE STUDENTS

Subjects	No. of Dreams: No. of REMs	Erec-tile	Non-erec-tile	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
1 Med stu	6	4		31	4	26	37	8	23
			1	53	0	17	62	52	21
1 Coll stu	3	2		65	16	54	65	41	36
			1	21	0	0	33	42	10
1 Coll stu	2		1	50	17	34	26	39	19
1 Coll stu	3	1		27	17	0	0	0	24
1 Coll stu (last)	4		1	31	0	23	0	25	21

Scores as percent of total possible score.

scored for one medical student and three college students (Table XVI) where these recordings were taken in the second sleep session, and for one college student whose comparable dual monitored session without a prior film presentation occurred at the last of his sessions. The college students show a greater inhibitory effect in these base-line sessions both in the number of dreams reported and in the scores of their dreams, most particularly in the scores of the nonerectile dreams. This effect is also apparent in the case of the one college student who had a nonfilm dual recording sleep session as the last in his series.

Dreams on Successive Nights

Although the subjects had the majority of their sleep sessions spaced at weekly intervals, five subjects had one session that followed the preceding one by only twenty-four hours (Table XVII). The orality dream scores of two of the subjects, both of whom were medical students, were higher on the dreams of the second of two successive nights than their average orality scores for all of their dreams. The scores for the remaining three subjects appeared to be more influenced by the presleep film stimulus than by the close spacing of the sleep sessions.

TABLE XVII

AVERAGE DREAM SCORES OF SUCCESSIVE NIGHTS

Subject	Film	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
LN	London	52	13	17	55	43	33
	Total	43	15	25	44	44	32
All Ss	London	28	13	16	24	24	23
LM	Incision	15	17	11	6	40	15
	Total	24	19	17	9	43	17
ZK	Incision	46	25	10	17	31	27
	Total	40	17	21	29	27	28
All Ss	Incision	10	11	10	24	18	23
DV	Birth	14	5	10	25	10	16
	Total	21	15	11	23	18	20
SH	Birth	19	21	21	24	36	8
	Total	22	15	22	20	29	13
All Ss	Birth	31	10	19	20	25	32

Scores as percent of total possible score.

Influence of Strain Gauge on Dream Scores

To ascertain a possible influence on the dream scores by the presence of the penile strain gauge, a comparison was made of the dream scores of subjects who had been exposed to the same presleep film stimuli and who differed in recording of the tumescent state during the sleep sessions (Table XVIII).

TABLE XVIII

DREAM SCORES OF SUBJECTS WITH AND WITHOUT PENILE GAUGE

Film	No. of Subjects	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Subincision	3: no gauge	37	20	20	35	26	26
	5 ga, coll stu	8	10	8	17	23	21
	3 ga, med stu	27	7	10	18	19	20
Birth	3: no gauge	19	10	9	20	20	27
	4 ga, coll stu	29	7	18	24	21	36
	4 ga, med stu	19	13	19	34	26	20
Far West	3: no gauge	28	4	13	22	28	28
	4 ga, coll stu	27	14	14	16	20	23
	3 ga, med stu	36	14	14	19	34	18

Scores as percent of total possible score.

The subjects with the strain gauge showed more inhibition of dream scores following the incision film than the subjects with only single monitoring. This was true both of the more sophisticated medical students as well as of the college students. However, after the birth film the opposite effect was apparent with the subjects—with the strain gauge group having higher scores in general than the subjects of the other group. In this case, however, the college students with the strain gauges showed greater response than the medical students. These results suggest an additive effect of the presleep film stimulus and experimental gadgets on the emotional factors in dreams. The penile strain gauge affected the dreams of the male subjects by appearing to augment the inhibiting influence of the shocking film of male castration while providing a reassuring effect for the film of a female during the delivery of a baby.

Some of the dreams were quite undisguised and showed an interesting progression of the dream mechanisms involved in perception of the strain gauge. For example, one medical stu-

dent dreamt there was something wrong with the strain gauge which was causing him some physical discomfort. The dream situation then changed and there was a sore on his genital which required operation. One of the retarded children in his charge was going to operate on him with the experimenter's approval, despite the dreamer's vehement protests.

The undisguised appearance of the strain gauge in the manifest content of the dream was repeated in the erectile dreams of two other subjects which occurred after the presentation of the birth film.

Dreams of the Experimental Situation

Excluding the dreams of the first base-line sessions, which other investigators [1, 4] have described as having the highest frequency of manifest dreams concerning the experimental situation, we found in our data of subsequent sessions that three medical students and one college student had dreams in which aspects of the experimental milieu or action appeared undisguised in the manifest dream. The dream scores of the manifest dreams containing references to the experiment (Table XIX) indicate superego conflict in all of these dreams, regardless of the session in which they were reported, and regardless of which of the presleep film stimuli had been presented prior to the session. The telephone, which was immediately contiguous in time to the subject's awakening, appeared as part of the manifest content in six of the dreams, and the ringing of a bell in

TABLE XIX
SCORES OF DREAMS WITH MANIFEST CONTENT ABOUT EXPERIMENT

Subject	Night	Film	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
ZK	5th	Subincision	42	31	0	0	53	41
	6th	London	30	38	26	50	21	43
PC	3rd	Birth	36	0	17	39	40	13
			21	0	8	0	38	32
			22	0	0	0	29	23
WT	2nd	Subincision	35	0	22	52	35	21
	3rd	Birth	37	28	0	45	38	30
			52	0	0	52	42	28
DV	3rd	West	24	41	0	0	34	38

Scores as percent of total possible score.

two of the dreams. However, these dreams appeared to have variable scores which were probably influenced by some other factor.

Repetitive Dream Themes

Three of the college students had several dreams with similar themes or settings. One college student had four out of his six dreams dealing with political topics. As might be expected, these dreams all scored high on the superego scale. Three of the dreams with political themes were erectile and occurred in the sleep session following the subincision film. A fourth dream with a political theme was reported in the sleep session after the Far West film, and was nonerectile.

A second college student had four out of a total of fourteen dreams containing themes in which the subject was mending various kinds of fixtures. Despite these dreams being erectile (2) and nonerectile (2) and occurring after the neutral films, all subjects scored high on the genitality.

The third college student had six out of his total of fifteen dreams containing themes related to his job as lifeguard at a beach. Although all were erectile dreams, at least one occurred following each of the four film stimuli. All of the dreams with the lifeguard theme scored high on genitality. In these three cases the consistency of the dream themes and dream scores suggests the presence of individual personality conflicts in the three subjects which may be unrelated to the experiment (Table XX). It was interesting to note that the average scores on the significant scales for the repetitive dreams were higher than the average scores for the same scales for the entire dream series. The average superego dream score for the dreams of political themes was higher (38%) than the average for all the dreams of the series (25%); also this dreamer's average superego for all of his dreams was higher (36%) than the average for the overall dream series. Both the average genitality scores for the mending dreams (39%) and for all this subject's dreams (37%) were higher than the average genitality score for all the dreams of the series (20%). The average genitality scores for the beach dreams (25%) were higher than for the

TABLE XX
SCORES OF REPETITIVE DREAMS

Dream Theme	Film	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Politics	Subincision	12	24	6	0	28	13
		25	19	8	14	41	20
		0	0	13	0	32	13
	Far West	35	19	49	0	50	23
Mending	London	44	19	19	59	41	32
		34	13	0	41	24	39
	Far West	38	16	0	25	0	17
		46	34	35	34	33	46
Beach	Birth	32	0	28	32	0	28
		0	0	0	24	17	10
		0	24	0	31	0	12
	Far West	16	25	0	24	40	19
	London	19	20	0	17	21	11
	Subincision	0	26	0	27	14	8

Scores as percent of total possible score.

dream series (20%), but the average genitality scores for all of this subject's dreams (19%) were not higher than that for the entire series (Table XXI).

One of the subjects characteristically gave very lengthy reports on being awakened, regardless of whether he had a dream. The *resistance* nature of his responses is expressed in the manifest content of part of a dream in which he reported, "Something had to come out. I tried to stall for time. I was discussing with someone a system where you could stall for time by asking lots of questions." This dream scored high on the anality scale.

Conclusion

The separate scoring of dream data collected by several investigators in different sleep laboratories has proved to be par-

TABLE XXI
AVERAGE DREAM SCORES OF REPETITIVE DREAMERS AND ALL SUBJECTS

Subject	Hostil.	Oral.	Anal.	Genital.	S. Ego	Ego
Politics dreams	22	22	19	4	38	18
Politics subject	20	16	14	8	36	19
Mending dreams	40	23	13	39	24	33
Mending subject	36	13	21	37	37	29
Beach dreams	11	16	5	25	15	13
Beach subject	18	13	9	19	15	22
All subjects	25	12	15	20	25	22

Scores as percent of total possible score.

ticularly rewarding to us. In being independent of the original experimenter's specific goals, the separate participating investigator may be impressed by other aspects of the data that are of importance. In previously published reports on the data we have used in these studies,[4,11,26] somewhat different aims, results, and conclusions were drawn. These were important contributions which, although not coinciding with our own findings, are not in conflict with the results of our study. Rather, it is apparent that other dimensions have been added by use of the dream scales.

The dream data available from various investigators, which have been gained at considerable expenditure of energy, contain an inestimable wealth of material pertinent to theories of personality, psychopathology, dreams and sleep. It seems doubtful that full use can be made of the dream data without several investigators reviewing the material. At the same time, some disadvantages of joint participation are obvious: the participating investigator's ignorance of the actual circumstances and events occurring during the experiment; the necessity for relying on research protocols which may contain information that is insufficient, incomplete, or misleading for the purposes of the participating investigator; and possible deficiency in limiting variables and setting up adequate controls for the purposes of the participating investigator.

From our studies of sleep-laboratory dreams, certain trends have been noted which appear to be of interest. An outstanding finding in all three series is the periodic fluctuation in emotional factors in dreams of a series derived from the same subject, regardless of whether the dreams were reported in single or sequential nights, whether any attempt had been made to influence the dreams by exhibition of "stimulus films" prior to the sleep sessions, regardless of the presence of unusual devices attached to sensitive parts of the body, and regardless of the appearance of repetitive themes in the manifest content of the dream. The oscillation noted in emotional factors in dreams is a characteristic of a wide range of processes described in living matter. The endogenously determined rhythms, from circadian

cycles to momentary variations in cellular processes, have attracted much scientific attention in recent years.[18] The evidence from neurophysiological studies of autonomous rhythmically functioning brain centers of sex, nutrition, and dreams in close proximity, suggests a physiological substratum for rhythmic variations in the psychological expressions of these drives. Additional investigation may reveal the timing characteristics for the psychological cycles. Other explanations for the fluctuation in dream scores are (1) that the dream is not a reliable source of information about emotional factors and personality dynamics; and/or (2) that the dream scales do not provide valid information about the dreams; or (3) that other personality factors not available in this study determine the patterns of scores.

In the study of dreams collected from normal subjects in a sleep laboratory, increased genitality and ego dream scores were obtained by those subjects whose sleep sessions were conducted by an experimenter of the opposite sex. The effect of the expected auditor on dream content was originally described by Freud in his monumental work on dreams.[8] Similar findings of increased sexual content in manifest dreams of female subjects reporting their dreams to a male experimenter have been described by Whitman.[25]

To some extent, any sleep session in which a subject is awakened at the time of dreaming contains elements of dream deprivation. Both the length of time to which the subject is exposed to dream deprivation and the length of time of the intervening rest periods appear to be important, as mentioned in the original studies of Dement.[3] In our study, the dream scores appeared to be unaffected in those subjects whose dream recording sessions were spaced at intervals of a week or longer. Also there was no consistent rise in orality scores in the last dream or a recording session when such an increase might have been expected on the basis of hunger, or conditioning for breakfast. However, four subjects from two different series demonstrated a striking rise in orality scores in the dreams reported on the second of two successive nights of sleep and

dream recording. This finding is consistent with the oral symptoms of voracious appetite and weight gain noted in some subjects participating in dream deprivation studies. The rise in orality scores may reflect the intensifying of oral conflicts, which, according to Lewin's theory of the oral nature of the dream,[14] might result from experimental interference in the dream process. Content analysis of the dreams occurring in dream-deprivation investigations would be of further interest, not only as a method of confirming our findings but also as a possible means toward understanding the personality disintegration that occurs in some of these subjects.

In the study of dreams of subjects to whom presleep film stimuli had been exhibited, the dream scores indicate the influence which strong day residues have upon dreams. The dream scores for hostility and genitality increased following the subincision film; and dream scores for anality, superego, and orality increased following the monkey film. These effects were apparent despite a possibly insufficient opportunity for the subjects to become accustomed to the experimental situation and a resultant possible neglect of establishment of true basal conditions. Also of interest was the appearance of occasional high genitality scores in dreams following the presumed "neutral" travelogue film of the Far West. In inquiring about the possible source of these scores, we found that this film had brief flashes of sexual material. Possibly the marginal stimuli of the neutral film were responsible for the high genitality scores as demonstrated by Fisher's work [6] on dream elaboration of minimal perceptions.

The interpretation of the results of content analysis of dreams occurring with and without penile erections poses a number of problems, among which may be listed: (1) complications due to the presence of an instrument on an organ known to be sensitive to psychological as well as to physical stimuli; (2) inhibition of sexual exhibitionism noted in sleep-laboratory experiments where, for example, nocturnal emissions have been absent or extremely rare; (3) inadequacy of currently available electronic devices to localize the origin of neural excitation for

erection, emission, and their variations—a limitation which hampers the understanding of these sexual phenomena; and (4) inadequacy of neurophysiological theory to account for these manifestations of sexuality. An inhibiting effect of the penile strain gauge on frequency of dreams and dream content was apparent in the comparison of the dreams of subjects whose experimental conditions were the same except for the presence of the device for the measurement of the tumescent state. As the inhibiting effect was most marked in nonerectile dreams, the combination of the two inhibiting factors is suggestive of a correlation between them.

Also of interest was the implication from the data that reduced dream recall seemed to be related in some of the subjects to determinants of erection. This was particularly true for those subjects who had erections with every reported dream, 6 percent of their REM states having been associated with absence of erection and 65 percent of their REM states having dreams reported. Subjects who had both erectile and nonerectile dreams had 26 percent of their REM states associated with absence of erection and 72 percent of their REM states with reported dreams. The group of subjects who had both erectile and nonerectile dreams also had a striking number of their nonerectile dreams following the birth film (7 of the 9 subjects having 78 percent of their nonerectile dreams). Inhibiting factors implicit in all the sleep-laboratory experiments, however, must to some extent account for the absence of nocturnal emissions, which, according to Kinsey,[12] occur with rather impressive regularity in normal males of this age group under home circumstances.

A striking finding in the dream scores was the high superego scores for every subject in every nonerectile dream. Most of the subjects also had higher hostility dream scores in their nonerectile dreams as compared to their erectile dreams. An additional finding was the complete inhibition in the dream scores of the homosexual subject of other emotional factors along with a high superego score on his one nonerectile dream. As superego conflict is an important aspect of the castration complex, our

data suggest that a rise in castration anxiety may accompany nonerectile dreams. The relative reduction in genitality scores for the nonerectile dreams following exposure to the two films of shocking sexual content may imply an increase in sexual inhibition, which is also characteristic of castration anxiety.

As in the previously mentioned series of subjects who had been exposed to presleep film stimuli, the dreams of the nine doubly monitored subjects also had scores indicative of some influence on the dream content by the highly charged experimental day residue. The extra instruments used with these subjects might be expected to increase the experimental time required for the subjects to become accustomed to the experimental situation. In accordance with the law of initial values, the higher basal conditions for this group resulted in the decreased response of these subjects' dream scores to the film stimuli. Nonetheless, some influence of the films can be seen in the high genitality and disturbed ego scores following the subincision film; and high anality scores following the birth film. The scores of the dreams of the homosexual subject indicated marked inhibition of all emotional factors and disturbed ego dream functions in the sleep session following the subincision film. Although only one homosexual subject was studied, his scores were in line with the psychoanalytic theory that castration anxiety is a major problem in homosexuals.

Part of the difference in response of some of the subjects to the experimental manipulation may have been due to varying degrees of sophistication of the subjects. Greater familiarity with anatomy, electronic instruments, laboratory settings, and medical procedures such as were shown in the birth film could be expected to reduce the experimental time the medical students would require to become accustomed to and comfortable with the experimental situation. The more naive college students had fewer and shorter dreams than the medical students, indicating a greater inhibitory effect of the experimental situation on the college students. Following the subincision film, the dreams of the medical students scored higher on the hostility scale than those of the college students, and the college

students scored higher on the superego scale. These results may be interpreted as indicative of the castration film eliciting a more direct form of response, hostility, from the medical students, and more fear of retaliation and guilt in the college students. An increased familiarity with sexual experience in the older medical students may partly account for their relatively less defensive response to castration material. The disturbance in dream ego scores of the college students following the birth film indicates the more traumatic effect of this film on those lacking familiarity with medical experience.

The dream scores of the 107 dreams in this series indicate that genitality scores in naive subjects and superego scores in all the subjects, reflect the presence or absence of the tumescent state. These scores are suggestive of the possibility that, on occasion, psychological factors such as castration anxiety do influence dream content, and probably, erectile state. Further confirmation of this comes from the similar direction of the scores of dreams occurring after the subjects had been exposed to films with themes of aboriginal castration rites. However, the absence of erection accompanying other dreams obtaining high superego scores indicates that this may be only one of several factors and not always the decisive one. Other studies of castration anxiety in dreams [5] also indicate a variation in the extent of influence of this factor.

Although it would seem certain that the infant male's non-erectile REM states must be based on physiological factors, the determination of the physiological influence in adult males remains to be assessed. Along with this is the question of a presumed neurophysiological sexual response concomitant with the dream state in females, which as yet has not been detected. Measurement of sexual arousal in terms of temperature change appears to be promising.

From the dream scores of three subjects who had repetitive dream themes, there was a consistency of the repetitive theme and dream scores. Such results imply the presence of individual personality conflicts in these subjects which may be unrelated to the experiment. Similarly, the difference of the

dream scores of the homosexual subject also reflects an individual problem which has its origins outside of the experiment.

Among the factors that appeared to decrease the impact of traumatic stimuli—whether from experimental instrumentation, presleep stimuli manipulation, or interview content were—age, medical knowledge, sexual experience, and normality of sexuality.

Extensive testing of the dream scales on normal populations of a wide range of ages remains to be done before definition of "normal" dream scores can be attempted. It is expected that not only the scores but also the variation in the dream scores will be of importance in delineating health and disease. From our studies to date, some variation of a cyclic nature appears to be intrinsic to the dream process, as it also is in the daily thought life. The agreement of the results on our dream scales with those of other investigators [9] and the agreement with clinical observations are considered to be of validating importance to the dream scales.

Summary

Content analysis utilizing the dream scales was carried out on 65 unidentified manifest dreams obtained from ten subjects in two nights of sleep-laboratory dream recording; on 42 dreams obtained from three subjects in six sessions of sleep-laboratory dream recording with films as presleep stimuli; and on 107 dreams obtained from nine subjects in six sessions of sleep-laboratory dream and tumescent-state recording where films had been used as presleep stimuli. The increase in dream orality scores in four subjects who participated in dream-recording sessions on successive nights is in agreement with the findings of other investigators who have described increase in oral conflicts as a result of dream-deprivation studies. The periodic fluctuation in the scores of all the scales with the exception of the ego scale may indicate endogenously determined fluctuation in emotional factors in dreams. A change in dream scores apparently related to transference factors and to presleep stimuli of both shocking and marginal nature is consistent with psychoanalytic theories and tends to confirm the validity of the dream

scales. The dream results also suggest occurrence of castration anxiety factors as a concomitant of absence of erection during some dreams, this effect being more prominent in naive subjects and in subjects with sexual aberrations than in more sophisticated subjects.

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DISCUSSION

HARRY FISS

IT HAS OFTEN occurred to me that *psychologists* doing research on sleep, an area traditionally dominated by the physiologist, must be suffering from some form of identity crisis. Normally, according to Erikson,[1] such a dilemma gets resolved in dreams. But since sleep researchers are usually dream-deprived, the crisis is frequently acted out in the waking state, manifesting itself in a pathological denial of their identity. Thus you will find that they generally present the results of their work only to other sleep researchers and practically never just to fellow psychologists. And while neurohumoral, ontogenic, evolutionary, homeostatic, and other biological notions have attracted considerable attention, we are still left without a sound, *empirically* based *psychological* conception of sleep and dreaming. Even the psychoanalysts have been reluctant to venture beyond the traditional quasi-physiological emphasis on the dream as a means of discharging instinctual-drive tension.

It is with special pleasure, therefore, that I greet this opportunity to contribute to this volume which gives the psychology of the dream its due weight.

What about the future though? Practically everyone agrees that dreaming serves a psychological function, and that in order to discover what this function is we must study dream *content*. Dr. Sheppard has fashioned a set of very useful tools for this very purpose. But where do we go from here? Which theoretical orientation, which methodological stance is most likely to advance our knowledge of this area? Is it just a matter of being objective, or of pooling different schools of thought, as was suggested earlier?

I certainly do not profess to have the best or the only answer to this question. But I would like to share with you a few thoughts I have on this subject, especially as these have a direct bearing on some of the issues raised by Dr. Sheppard's stimulating contribution and by many of the earlier presentations.

I would like to begin this discussion with the premise that

too much emphasis has been, and still is being, placed in sleep research not only on reductionistic but, more generally, on quantitative, energic considerations; at the same time, too little attention is being given to structural and qualitative concepts. I am in complete agreement with Trosman,[3] who stated in an earlier publication that *ego factors* along with drive components play a crucial role in the dream process.

We have heard a lot about great discoveries being born in a dream. Dr. Lehman has mentioned Descartes; I might add Kekule von Stradonitz's discovery of benzine, the chemical composition of which allegedly appeared to him in a dream in the form of a hexagonal ring, and I suppose also a recent magazine article which credits a dream with the discovery of Dilantin® for possible use in the treatment of nonconvulsive psychological disorders. Perhaps there is less fact than fiction in all these anecdotes. But is it not plausible that *what we dream about*, *how* we dream, is as important as *how much* we dream; that the need for a particular kind of sleep experience is psychologically just as important as the biological need for a particular stage of sleep? No one questions that the quality of our waking thought determines the adaptiveness of our behavior; why then question the adaptive or even creative potential of sleep mentation?

If nothing else, this line of reasoning at least has the *methodological* advantage that it is conducive to the designing of studies in which the consequences of controlled manipulations are all predicted at the very outset in the form of testable hypotheses. With all due respect to other types of research—be they exploratory, validational, clinical, or normative—I would like to join those who think that we *are* ready for a *rigorous* approach to psychological studies of the dream process. We want to define our independent variable in such a way that we know precisely what stimulus properties the subject is responding to. A film is not a variable. We want to know as much as we can about our subjects. *Are* college students, for example, more naive than medical students? These are the kinds of questions I would like to see answered before even starting out, because

otherwise we will always run the risk of obtaining results which will tantalize or baffle us more than they will enlighten us.

For example, Dr. Sheppard reports that the one married subject in her studies had all of his nonerectile dreams following the birth film. How pregnant with ideas *this* finding is! Or she reports that the one homosexual subject had his only nonerectile dream after the subincision film. From this, or the more general finding that nonerectile dreams had higher superego scores than erectile dreams, she is tempted to infer, understandably enough, that castration anxiety may have been the determining factor here. Or consider the (to me) equally fascinating observation, casually mentioned by Dr. Sheppard that the largest number of REM periods and dream reports was obtained from a subject who was a seminary student. It occurred to me that this subject's elevated REM times may have resulted from prolonged periods of social and sensory isolation. Evidence of such a relationship has been reported in the literature.[4] It is consistent with the homeostatic model of sleep function, according to which REM sleep provides "endogenous afferentation" to compensate for loss of "cortical tonus" presumably resulting from lack of sensory input during the preceding NREM sleep.[4] But, if you happened to be psychoanalytically oriented, you might be more inclined to say, "Of course, the seminary student was discharging 'dammed-up libido' in his dreams." The trouble is that as long as such speculations are made *post hoc* they may all be invalid because of any number of uncontrolled chance factors—a sobering but unfortunately unavoidable alternative.

I am also a bit bothered by the welter of findings for which no plausible explanation apparently can even be offered. We are informed, for instance, that genitality and hostility scores increased following the *subincision* film and that orality, anality, and superego scores increased following the *monkey* film; or that subjects with the penile strain gauge showed greater inhibition of dream scores than subjects with only single monitoring after the *subincision* film, and that the reverse took place after the *birth* film. What does all this add up to? We all have our hunches, but can we ever hope to know for sure?

Not, I think, unless we make better experimental use of the kinds of content-analysis techniques that Dr. Sheppard has described. Her analyses, of course, are based on data collected by different experimenters for a different purpose; so, in all fairness, no such experimentation would have been possible. But this is not to say that we should not give it a try. I disagree with Dr. French that we cannot learn anything about dreams by the experimental method. On the contrary, only the experimental method can teach us anything, but it has to be the appropriate experimental method. I think we would do well to spend less time criticizing the physiologists for not being phenomenological and to concentrate more energy on thinking rigorously and constructively about the experimental problems raised by our clinical observations.

Because, as Dr. French said—and here I agree with him—the dream is a meaningful cognitive "structure," one point of departure for an *experimentally* oriented dream psychology could be, for example, the ego's capacity to organize sensory input—its "synthetic" function, if you will. Since organization implies completion, a need for a certain quality of dream experience should manifest itself in a need to complete one's dreams. I believe Dr. Sheppard had this in mind in noting the influence of marginal stimuli on dream content. Rechtschaffen,[2] Spitz,[5] and Hartmann *et al.*[6] have advanced similar notions. But how to demonstrate such a drive toward completion?

At this year's APSS meeting, I presented the results of two separate attempts to answer this question. Both studies indicate that preventing dream *completion* had a greater psychological impact than did dream *deprivation.* In the first study,[7] which employed a technique used in my original demonstration of a "carryover" of sleep mentation into the waking state,[8] subjects produced TAT-type stories immediately after being awakened, on different nights, at the very beginning, in the middle, and upon completing a REM period. Story content was independently assessed for drive intensity, vividness of imagery, bizarreness, and other characteristics of REM-sleep mentation. Only stories produced after *interruption* of an *ongoing* dream

contained evidence of dream-like thinking persisting into the waking state. The interrupted dreams were also followed by the largest number of stories containing themes of frustration and destructive hostility, suggesting that interruption, not deprivation, had the stronger effect. Incidentally, I find it interesting that the same carryover phenomenon, which Dr. Snyder referred to earlier as suggesting that the dream report may merely be a confabulation in the waking state, may, when produced under slightly different experimental conditions, be interpreted as supporting the view expressed by Drs. Meier, Bonime, Hawkins, and Shulman that the dream—the successful dream, I should add—has an important psychological function. I think we have another illustration here of the importance of clearly specifying what variables we are manipulating, for what purpose, and how.

In our second study,[9] two subjects were tested in the sleep laboratory for nine consecutive nights each. On two nights, subjects were awakened during every REM period about ten minutes after REM onset. On the first recovery night immediately following the interruption nights, both subjects continued to have REM periods approximately as short as the ones they had on the interruption nights. This suggests that they learned to avoid being awakened from a dream and to do all their dreaming in a shorter time. Again, completeness seems to have been the crucial determinant, and not sheer amount of dreaming, which was controlled for. We have since replicated this finding with two more subjects, and have also begun to study the effects of massive REM period interruption on dream *recall*, hoping to find more direct evidence that interruption brings about a tendency to "crowd" more and more dreaming into the time available. This obviously poses challenging problems for content analysis, quite a few of which, I think, can be solved by scaling methods of the type suggested by Dr. Sheppard.

The need to have a particular kind of dream may also manifest itself in a tendency to have repetitive dreams. Dr. Sheppard discusses repetitive dreams, but I believe I am a bit more impressed than she is with the research potential in this phe-

nomenon. A recent study by Collins, Davison, and Breger,[10] for example, demonstrated that dreaming about the subincision film helped subjects master the stress of viewing it. I see no reason why we cannot assume, along with Ephron and Carrington,[11] Jones,[12] Lerner,[13] and others, that the dream may serve to safeguard the integrity of all ego functions. This is what I had in mind when I mentioned earlier the adaptive usefulness of dreaming. In her desire to know more about the effects of dream deprivation on personality, Dr. Sheppard expresses a similar interest, one which I fully share. But again I would concentrate more on the *ego* aspects of personality.

In one of his articles,[14] Snyder hypothesizes that REM sleep enhances "critical reactivity." Suppose you measured this by means of an orienting response to a novel stimulus. Would responses be greater after awakenings from a REM period than they would be after awakenings from NREM sleep? Or take reality-testing, a variable which I think can be measured with a fair degree of validity and ease, and which is another of the functions we are currently investigating at New York University's Research Center for Mental Health. Would accuracy of reality-testing, for example, vary as a function of the hallucinatory intensity of the preceding dream experience?

You will perhaps note that I am now asking a much broader question, one concerning a distinction between dreams that have an ego-integrating effect and dreams that do not. Or, stating the problem in a somewhat different way: instead of focusing on fluctuations in ego functioning as reflected *in* dream content, why not explore the possibility that ego functions may fluctuate as a *result* of dream content? For example, would it make a difference to a person's self-esteem whether he just had a dream in which he was successful in some important way, or whether he had just dreamt that he was a big flop? Would a dream in which, according to one of Dr. Sheppard's scales, people are perceived as sick or mutilated, have a different influence on the dreamer's postsleep body-image than would a dream in which everyone was well and happy? Will a repressed idea become conscious in the waking state after appearing in a dream?

Is an uncompleted task more likely to be forgotten in the morning if it is completed in a dream? These are only a few of the extremely intriguing questions that come to mind once you pursue this line of thought and which for some time we will be in the process of trying to answer. I think we have reason to feel optimistic about our prospects. So much is known about the role of day residues in dream formation; but what is known about the influence dreams have on our subsequent waking life? Hardly anything. Yet, understanding the conditions that would facilitate growth-promoting dreams could prove an enormous boon to mental health! How far a cry *this* would be from the still-prevalent view that the dream is a mere psychic appendix, an epiphenomenon, important only as an organismic state rather than a psychological experience.[2]

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IV

Introductory Remarks

JAMES L. TITCHENER

NOW WE ARRIVE sharply at problems in the study of the content of dreams. Richard Jones will show us how he applies Erikson's theories of personality development to the analysis of dreams. From experimental work, Herman Witkin hopes to show how more immediate experience contributes to dream imagery. Rosalind Cartwright surveys her research and that of others on dreams and dreaming toward a better understanding of the human experience of having a dream. Milton Kramer looks at dream content as a category of mental process in psychopathologic states.

From a psychoanalytic point of view, these investigative approaches promise considerable practical and theoretical progress. In psychoanalysis, we attempt to increase the patient's monitoring power over his own information-processing system to show him what happens to the input of the system *before* it becomes output and gets him into trouble or makes him feel bad. In other words, we try daily to show him how his mind works. The methods of research being discussed in this section seem to me to deal most directly with this task of the therapist or psychoanalyst. For example, in Jones' work the method of analysis may show how a *stored* input becomes an output through dream imagery, or, in more familiar terms, how repressed memories influence dreaming. Witkin is experimenting directly with day residue (I think it is *night* residue in his subjects); therefore, his studies demonstrate how *immediate* inputs are processed. Cartwright discusses the *kind* of information-processing represented by dreams, and Kramer uses dreams for a comparison of modes of information-processing or the various workings of the mind in psychiatric illnesses.

These studies should provide us with both theoretical and practical advantages in our therapeutic and psychoanalytic work.

Chapter 12

An Epigenetic Analysis of Dreams

RICHARD M. JONES

WHEN WORKING ON *Ego Synthesis In Dreams*,[3] I was less concerned with the method involved in the epigenetic analysis of dreams than with trying to make a plausible case for the hypothesis that dreaming performed adaptive or growth functions as well as defensive or cathartic functions. It seemed to me that this hypothesis would be best studied by subjecting manifest dreams to an analytic method derived from a theory of adaptive human development, and I chose for that purpose what I believe is our most viable such theory: the epigenetic dimension of psychoanalytic theory, as originally formulated by Erik Erikson.

Since the publication of *Ego Synthesis In Dreams*, I have received a number of justifiable complaints that the examples of epigenetic dream analysis contained in that monograph are neither sufficiently numerous nor clear to enable other investigators to employ the method. Sometimes these complaints have been accompanied by requests for an explicit statement of the definitions and criteria that had been my frame of reference when composing examples of ego-synthesis processes in dreams.

In response to such requests, I now have what I consider to be a two-thirds completed scoring manual for epigenetic dream analysis. The definitions and criteria have been explicated, and copious examples of dream items scored according to these definitions and criteria have been collected. What remains to be composed and demonstrated is a scheme for summarizing and perhaps quantifying the results of epigenetic analysis of dream *series*. This, I regret to say, will not be forthcoming soon, as I think that publication of such a summarizing format without

examples of its utility in the actual conduct of substantive research would be a sterile document, and I have not yet had an opportunity to accumulate such examples—although preliminary work has been encouraging.

The manual as it stands is a bulky document consisting of eighty-eight pages: much too long to include in this discussion. What I shall discuss is an abridgement of the introduction to the manual, which contains, I think, a more lucid and systematic example of epigenetic dream analysis than can be found in the earlier work.

Without Freud's contributions, we would know less about the psychology of dreaming than has been learned in the past decade about the physiology of dreaming sleep. But the advantage is not a simple one. What we can learn from Freud about dreams is of two orders: (1) how to interpret them and (2) how to study them. The first is a method for using dreams to instruct wakefulness. It is an aspect of the psychoanalytic theory of personality change and is recognizable in such terms as *latent content* and *censorship*. The second is a conceptual scaffold for constructing a psychology of dreaming. It is an aspect of the psychoanalytic theory of thinking and is recognizable in such terms as *regard for representability* and *regression to the perceptual end of the psychic apparatus*. It is important that we keep these two frames of reference conceptually distinct. For example, in the first frame the concept of the *dream work* is commonly understood to refer to *censorship* or *disguise*. In the second frame, the concept of the *dream work* refers somewhat more generally to *transformation*. To overlook this distinction is to invite polemics into the art of dream interpretation, and in the study of dreaming the oversight can lead to an underestimation of our ignorance.

Much of this one-sidedness is due to the nature of our tools; they are almost exclusively oriented toward interpreting dreams and away from studying the processes of dreaming. It is as if we had remained content to codify Rorschach protocols with the aid of the first scoring system and had never thought to expand or supplement it. A Rorschach protocol, like a dream,

can be studied for purposes of personality diagnosis or for perceptual and thought processes. But there the similarity ends. We can at present submit a Rorschach protocol to content analysis, structure analysis, and sequence analysis to name only the most standard procedures. As far as dreams are concerned, Calvin Hall and Robert Van de Castle have recently produced a scoring manual for the analysis of dream *content*—and that, so far as I know, is the extent of ongoing tool-making activities in this otherwise fast-moving field of research.

Consider the following series of dreams from a report by Dement and Wolpert [1] entitled "Relationships in the Manifest Content of Dreams Occurring on the Same Night." The series was collected from one normal male EEG-monitored subject over the course of a single night of sleep:

Dream 1

We were swimming and doing a lot of things. Everybody was in bathing suits at the swimming pool and I seemed to be admiring my body all the time. In one of the sequences there was this race, and then the racing stopped, and I was swimming down towards the end of the pool. I must have swam it awfully fast, although kind of leisurely. I climbed out and there was some guy sitting there who I immediately disliked. He seemed to epitomize all the guys who makes asses of themselves parading around in bathing suits who I grudgingly admit do look good in bathing suits, but who are so conscious of it. And he was oiling himself. Anyway, it seemed as though I was afraid that my friend—I can't remember, he is just a blank . . . or even she, is just blank—was going to be attracted to this guy and not to myself. But for some reason I wasn't as afraid as I ought to have been. I seemed to have some sort of metamorphosis. I became just like a strong, muscled Greek god. There was a lot of diving, and once my bathing suit almost came off. It seemed like I was in a white bathing suit. Then it seemed like we were all waiting for a TV program that Miss X [a well-known Hollywood actress] was to be on just before the bell went off.

Dream 2

A and B [two prominent Hollywood entertainers] were lying on a bed in this room, and I was apparently with them. The door suddenly opened, and B . . ., no A fired his gun, started

firing his gun and the panels dropped out of the door and the whole door came crashing down. Then a half-visible man started walking in and saying, "I'm Mr. Blank, I want the plans." He walked over to A and put his hands around his neck and started to squeeze. It was odd because he was intangible but it seemed as though A could feel him squeezing. We all started trying to squeeze him back and all of a sudden he became tangible or something, but anyway I started to hit him and I just knocked the hell out of him, the poor little fellow. And I remember standing there in kind of a triumph just as the bell rang.

Dream 3

I dreamed I was coming into this room and I didn't have a key. I walked up to the building and Charles R. was standing there. The thing was, I was trying to climb in the window. Anyway, Charles was standing there by the door and he gave me some sandwiches, two sandwiches. They were red—it looked like Canadian bacon and his were boiled ham. I couldn't understand why he gave me the worst sandwiches. Anyway, we went on into the room and it didn't look like the right place at all. It seemed to be some kind of party. I think that it was at that point when I started thinking about how fast I could get out of the place if I had to. And there was something about nitroglycerine, I don't quite remember. The last thing was somebody throwing a baseball.

Dream 4

I was talking to my aunt about how you got in touch with the underground left over from World War II. She told me about a number of other undergrounds and we were talking and wandering around the house and I played with my dog a little bit and so forth and she asked me about my work. Finally it seemed like it was time to get dinner and I knew that my mother had been cooking when we started talking. We went down to the dining room and I asked my mother about the underground, and just as I was waiting for her to tell us what the World War II underground was, I said, "Don't you think we can settle the question?" And the bell went off.

Dream 5

Uh, this dream had something to do with a lecture. It was something about Economics but anyway, I was sitting watching

Professor Z. and he was lecturing in a queer way. All the students were sitting down at the front of the lecture hall behind a long table, and Professor Z. was standing out in the middle of the room on one of the desks. All of a sudden, this big argument broke out while he was talking and they were both going on at the same time—his lecture and the argument. Claude R. and somebody else were arguing like that and all of a sudden I realized I was awake.

Dement and Wolpert, raising the question of whether the dreams in this series are in any way related, comment as follows:

> All the dreams in this sequence seem to express a general theme of conflict and violence. In dreams one and two of the series, an identical plot line is seen as the dreamer experiences a physical triumph over a male adversary. The triumph is associated with an abrupt metamorphosis in both cases. In the first dream, the dreamer becomes powerfully built "like a strong-muscled Greek god" and in the second, Mr. Blank suddenly becomes tangible and accessible to the dreamer's blows. Although the theme is constant, the setting is quite different; in one a bedroom, in the other a swimming pool. Only in the second dream does the conflict erupt into actual physical violence.
>
> Dream three finds the dreamer on the receiving end of his friend's hostility as he is given the "worst" sandwich. He also dreams "something about nitroglycerin." This "something" and the ball thrown by "somebody" and the question of how fast he could get out if he had to would seem to signify that the dream was about to disintegrate into a more open expression of violence as the awakening occurred.
>
> In dream four, violence is displaced in time to World War II and the underground, but the dreamer's query, "Don't you think we can settle the question?" seems to imply a concern over some present conflict.
>
> In dream five the violence is again verbal and is attributed to others whom the dreamer is watching from a distance.
>
> Thus, in this sequence, the theme of violence and conflict builds up into an actual physical outbreak in dream two. It is then seemingly contained verbally in the last two dreams after being allowed abortive expression in dream three.

Now, a different method of converting these dreams into research materials run as follows: All the dreams in this se-

quence seem related to the normal growth crisis of autonomy versus shame-doubt, as formulated in Erikson's epigenetic theory of ego development. In dreams 1 and 2 of the series, the dreamer experiences feelings of shame, embarrassment, or humiliation. In the first dream, he swims leisurely, takes a dislike to a show-off whom he nonetheless grudgingly admires, and is surprised to find that he is not afraid of being rejected. In dream 2, his sense of triumph is mixed with sympathy for the "poor little fellow" whom he is knocking hell out of. In dream 3 the emphasis shifts to ineptness and doubt—as he finds himself having to climb in the window for lack of a key and unable to understand why he is getting the worst sandwiches. Dream 4 finds him again in control of a situation in which his position is potentially weak as he takes the initiative in "settling the question" with his mother. In dream 5 there is some ambiguity as to who is feeling autonomous and who is experiencing doubt, Professor Z. or the argumentative students, and it is also not clear with which side the dreamer identifies himself.

From this analysis, we might conclude that some kind of adaptive dream work has been concerned in this series with reviewing, updating, or in some other way "working over" the nuclear epigenetic crisis which is central to normal development in the second and third years of life, and which enters more or less significantly into the developmental equations of all periods of life. Such a conclusion would be consistent with a variety of theories about the psychological function of dreaming including the theories of Jung, Adler, Maeder, Hall, Ullman, and French—and not excluding those of Freud.

At this point, a common misunderstanding should be anticipated in order to avoid it; we have shown that the dream series can be analyzed within two different frames of reference. This does not mean that we must choose between them. Dement and Wolpert were interested in spotting whatever common strains might have been governing this series of dreams. If any form of continuity could be shown, then there was a basis for the hypothesis that the dreams were related. These investigators hardly deserve criticism for using a standard tool in

testing this hypothesis (i.e. the familiar method of generalizing from the content of the dream to the psychodynamics of the dreamer). They do this expertly, and if the dreamer had been a patient in therapy, one can easily imagine increased insight being the result of their interpretations. The analytic approach used in the second instance adopts a reverse strategy. Here we do not use dreams for the purpose of shedding light on personality; rather, we use a theory of personality for the purpose of shedding light on the process of dreaming. The two approaches are complementary.

The familiar psychodynamic approach is strongest in showing connections between dreams and the psychological processes of waking life. The epigenetic approach is strongest in its potential for suggesting connections between dreams and the psychological processes of sleeping life: What might it mean when all five dreams of a series are attuned to the same nuclear stage of ego development? How might the processes that produce such a series differ from the processes that produce a series involving a *range* of nuclear crises? What might be suggested by a dream series that begins on a note of "trust," say, and ends on a note of "mistrust" or vice versa, or, as in the present series, when it begins on a note of autonomy, pauses on a note of doubt, resumes the autonomy theme, and ends on the fence? Consider the slant of these questions: they are more dreaming-oriented than dream-oriented. They seek to make amenable to investigation the nature of dreaming, the functions it performs, and the processes by which it performs them—whether the dream is interpreted or not.

But let us sound a note of caution. We have supposed that some kind of overall adaptive intelligence is at work in this series of dreams. This is a very large supposition, supported almost entirely by theory. Any attempt at empirical documentation is bound to be conjectural. Erikson's theory can support the conjecture, but only if we utilize more of it than we have so far. A few words, then, about the theory: The nuclear growth crises—trust/mistrust, autonomy/shame-doubt, initiative/guilt, industry/inferiority, etcetera—have enjoyed enthusiastic recep-

tions in psychological circles. Erikson has a way with words, especially English words, and has fortunately not subverted this talent by any misguided dedication to Big Science. (See Table I.) Column G is therefore pleasing to the eye, but this should not blind us to the congeries of psychoanalytic observations which column G is primarily designed to order, namely, the systematic interconnectedness of (1) man's prolonged and distinctively programmed physical maturation (column Z), (2) his distinctively elaborate development as a symbolizing creature (column M), and (3) the distinctive adaptive premium which is placed on his development of social skills (columns P and Y).* Failure to appreciate these complexities can result in using the worksheet as a way of avoiding, rather than a way of following, the theory that produced it.

With these reminders, let us turn to the conjectural task: Dream 1 seems to base its autonomy resolution along the psycho*sexual* dimension on the active incorporative mode (admiring my body all the time), and on the conceptual modes (he seemed to epitomize; I seemed to have some sort of metamorphosis). Along the psycho*social* dimension, the resolution is based on the eliminative and retentive modalities of "letting go" and "holding on" (immediately disliked; waiting for a TV program). In dream 2, the psycho*social* emphasis remains on the retentive and eliminative modalities ("I want the plans"; started trying to squeeze him back; knocked the hell out of him), while on the psycho*sexual* dimension the symbolism of intrusiveness is brought into play (fired his gun)—the autonomy resolution holding firm. In dream 3 in which the autonomy resolution devolves into doubt, the emphasis on intrusiveness continues (trying to climb in a window; throwing a baseball) but this time in conjunction with the passive incorporative modality of "getting" (he gave me some sandwiches). In

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* In other words Freud's (1) psychosexual theory, (2) topographic and dynamic theories and (3) structure theory. Erikson's contribution to psychoanalytic theory has not been to add anything substantive to it, nor to subtract anything substantive from it, but to bring its inherent organicity into clearer relief.

dream 4, which reintroduces the autonomy resolution, the active incorporative modality (asked my mother about the underground) is linked with the retentive modality (don't you think we can settle the question). In dream 5, the active incorporative modality (listening to a lecture) is brought into conflict with the retentive modality (a big argument . . . going on at the same time), and the resolution is ambiguous.

Two lines of conjecture emerge from this exercise: (1) the passive incorporative modality would seem to be problematic in that it only appears once and when it does in dream 3 the crisis is resolved on the side of doubt. This line of thought is strengthened by observation that the intrusive mode, which also figures in dream 3 held strong in dream 2, where it was associated with a different modality; (2) retentive social skills seem to comprise a stable ego resource in that they appear in every dream of the series *except* dream 3. They are conjoined with the active incorporative and conceptual modes in dream 1 and with the intrusive mode in dream 2—facilitating autonomy resolutions in both instances. In dream 4, they are combined with the modality of active incorporation with encouraging results; and in dream 5, they are opposed to the modality of active incorporation with ambiguous results.

May it be the case that we are observing here a recuperative or growth process in which a component of ego strength and a component of ego weakness are being systematically deployed in varying juxtapositions under the singular conditions of dreaming sleep? This is what we are left with: a hypothesis about *how* dreaming may function as a process of personality development, independently of any subsequent efforts to "interpret" the dreams.

A previous monograph sought to document the feasibility of this hypothesis, and it was in that context that I first explored the systematic possibilities of epigenetic dream analysis. I should like to stay on record as being optimistic with respect to the ego-synthesis hypothesis (i.e. that dreaming serves adaptive ego functions by way of the primary processing of problematic developmental sequences). Admittedly, however,

TABLE I
(*Cf.* JONES.[3] R.M., EGO SYNT EXTENDED WORKSHEET
(*Cf.* Jones [3])

Z *Psychosexual Zones*	M *Psychosexual Modes*	P *Psychosocial Zones*	Y *Psychosocial Modalities*	G *Normal Growth Crises*
Oral-Respiratory-Sensory-Kinesthetic	a. Passive incorporative b. Active incorporative	Maternal person	a. To get b. To take	Trust/Mistrust
Anal-Urethral-Muscular	a. Retentive b. Eliminative	Parental persons	a. To hold (on) b. To let (go)	Autonomy/ Shame-doubt
Infantile-Genital Locomotor	♂ Intrusive ♀ Inclusive	Basic family	To "make" (= going after) To "make like" (= playing)	Initiative/ Guilt
Cerebral-Cortical *	Conceptual *	"Neighborhood," School Community *	To turn to * To know how * To make things (= completing) To make things together	Industry/ Inferiority

TABLE 1—*Continued*

Z *Psychosexual Zones*	M *Psychosexual Modes*	P *Psychosocial Zones*	Y *Psychosocial Modalities*	G *Normal Growth Crises*
		Peer groups and out-groups; Models of leadership	To be (oneself) [or not to be] To share being oneself	Identity & Repudiation/ Identity diffusion
		Partners in friendship, sex, competition, cooperation a = heterosexual b = homosexual	To lose and find oneself in another ♂ To have and hold * (= protect) ♀ To have and hold * (= give in= produce)	Intimacy & Solidarity/ Isolation
		Divided labor and shared household	To let be * ♂ To make be ♀ To take care of	Generativity; Authority */ Self-Absorption
		"Mankind" "My Kind"	To be through having been; To face not-being; To be a has-been *	Integrity/ Despair

* Modification or extension of Erikson's Worksheet.

the method of epigenetic dream analysis may have wider applicability than the testing of this single hypothesis. I have therefore set as my present aim a detailed presentation of an epigenetic scoring system—a "cookbook"—for researchers in and out of dream psychology to make of what they will.

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DISCUSSION

PAUL H. ORNSTEIN

I DO HAVE to start by telling you about a recent conversation I had with my little boy on dreams. I was pondering over Dr. Jones' *Ego Synthesis in Dreams*[1] and had a few other dream texts on my desk one evening when my son, age seven, snuggled up to me and after surveying the titles asked, "Dad, what's in dreams?" Eager to terminate the conversation quickly, I said to him, "Oh, anything *you* want to find in 'em!" There was a brief pause, he started to laugh and said, "Dad, then it is not *in* the dreams but in your own head!"

This leads us immediately into some of the central issues of what Jones calls dream interpretation versus dream analysis. *Dream interpretation* is the method which arrives at the meaning of the dream in a clinical context. Its aim is to establish the connection between the dream and waking life. *Dream analysis*, a scientific procedure outside of a clinical context, should shed light not on the meaning of dream content, but on the processes of dream formation—that is, on the *psychology of dreaming* and not of *dreams*! If dream analysis is to lead to a psychology of dreaming, it should shed light on the psychological processes of *sleeping life*.

That interpretation establishes a psychological continuity between dream life and waking life is by now a well-established fact. That dream analysis outside of a clinical context is better able to lead us to a psychology of dreaming is not yet established, but it is one of Jones' main contentions.

In a savagely condensed version, Jones' dream theory runs as follows: Dreaming serves adaptive ego functions by constantly reworking ("primary processing" as he calls it), reviewing, updating—that is, *synthesizing*—nuclear epigenetic growth crises as formulated in Erikson's epigenetic theory of ego development. He arrives at this general formulation by a "structural analysis" of the manifest dream stripped of any context except that of other dreams of the same night or nights. He finds from among all the possible dream structures the "synthesis

ego" and its manifestations, the "synthesis patterns," as the ones to identify in the manifest dream in order to determine the dream's specific psychological function for adaptive personality growth.

Jones' own statement of his complete hypothesis goes like this: ". . . The manifest dream is the product of a confluence of psychodynamic factors: (1) A motivating repressed wish of infantile origin; (2) The defense ego which so discharges the energy of the repressed wish as to maintain a healthy state of sleep; and (3) The synthesis ego which so governs the setting, style, and rhythm of the dream's formation as to support a subsequent adaptive state of wakefulness." It emerges then that, according to Jones, the function of dreaming is to achieve ongoing ego synthesis, dream after dream, night after night, by reworking phase-specific epigenetic growth crises.

A whole host of questions arise, some in connection with theory and some in connection with methodology: Is Jones really dealing with the manifest dream in his search for the "synthesis ego structures," or is he actually translating the manifest content into his kind of latent content—a translation that only he can idiosyncratically achieve? I say this because, in an attempt to duplicate this translation on a very small scale, no two people found the same "structure." Let me give you one example from the preceding presentation.

The phrase in the dream, "immediately disliked" was seen by Jones along the psychosocial dimension as the "eliminative" modality of "letting go"; "waiting for a TV program" was seen along the "retentive" modality of "holding on." Are these the only modalities along which these structures can be identified? Unless we know precisely what are the rules for arriving at this formula, we are stymied. Of course, this problem is likely to improve considerably after the appearance of the "cookbook" which Dr. Jones promised.

The idea that these structural units of the manifest dream do not need a context to reveal their meaning is an intriguing notion and would make at least certain kinds of dream research much easier—if it were true! I think that Dr. Jones does have

a context for the dreams he analyzes. The trouble is that he has one that is imposed upon the manifest dream from the outside, namely, Erikson's epigenetic theory of ego development.

The epigenetic dream analysis was not born out of a clinical necessity; nor were the dream structures first empirically discovered and then put into theoretical context. The fact that Jones used the deductive rather than the inductive method here should, in itself, not detract from the ingenuity and possible heuristic value of his approach. It just makes it less palatable to the clinician. I should not complain about this because he stated clearly that he developed his instrument for epigenetic analysis of dreams for the researcher. He wanted to have the dream freed of its muddy and murky clinical context to study the psychology of dreaming.

The question then is, Is this a fruitful and promising method for discovering the function of dreaming and the processes of dream formation? It is hard to tell. But if you permit me a very brief digression for a semantic exercise, I will at least be able to hazard a guess.

We need *three* levels of discourse in our discussion and I wish to redefine them for our present purpose.

1. *The psychology of dreams*, that is, an understanding of the meaning, function, or purpose of individual dreams in the same manner and in the same frame of reference as we understand other individual bits of behavior or symptoms. It is from this psychology of dreams that our therapeutic interpretive activities arise. Every personality theory, therefore, logically requires its own psychology of dreams. We had ample evidence of that in the Freudian, the culturalist, the Jungian, the Adlerian, and the existentialist views of dream interpretation.

2. The *psychology of dreaming*, that is, understanding of the processes of dream formation in relation to a particular dream. How did this dream arise? What went into its making? In the same manner as we might want to understand how a particular conversion symptom, obsession, or compulsion arose, what precisely went into their making? The psychology of dream forma-

tion is here juxtaposed to the psychology of symptom formation to highlight what we mean by the psychology of dreaming. This is the level of Rapaport's "clinical theory." [2]

3. *The metapsychology of dreams and dreaming*, that is, a concept of the precise mechanisms (even micro-mechanisms) and processes of dream formation in general and the nature of the psychological structures that enter into these processes. It is here also pertinent to include a concept of the mental apparatus in which dreaming takes place. The metapsychology of dreaming (just as of any other function whether in waking or in sleeping life) is closely linked to the nature of the mental apparatus whose structures and mechanisms are responsible for all psychological processes, including dreaming. This is the level of Rapaport's "general theory." [2]

Now back to Jones' epigenetic analysis: He does not claim to make any contributions to the psychology of dreams; thus, we cannot quarrel with him on that account.

What about the psychology of dreaming? He says that "the epigenetic approach is strongest in its potential for suggesting connections between dreams and the psychological processes of sleeping life." The idea is very attractive to me, but I am not yet convinced since I have three reservations.

1. Until we systematically investigate the structure of ordinary waking thought, daydreams, fantasies, free association, hypnagogic hallucinations, and collected and spontaneously recalled dreams with the same instrument, we will not know whether the "structure profile" in relation to the manifestations of the "synthesis ego" is the same or different in these samples from a continuum of thought processes. There may be good reasons why ego synthesis should be greater during sleep (and therefore in dreams) than at other times. But we do not yet know if that is really the case. If synthesis turns out to be greater in dreams than in any of the other thought processes on the continuum, then we have found something that is more characteristic of the psychology of sleep than of wakefulness. (As yet, our reference point is always waking life.) We would then look for other instru-

ments and other variables (structural or otherwise) that could show qualitative or quantitative differences between sleeping and waking life on the continuum.

2. Even if the instrument should perform well and regularly identify these synthetic patterns, the insistence of working with the dream in isolation would seriously limit its usefulness for the purpose for which Dr. Jones intended it.

He raises the *logical* questions, What might it mean when all five dreams in a series deal with the same nuclear stage of development? How might the processes that produce such a series differ from those that produce a series with a whole range of nuclear crises?

Answers to such questions do require the use of the same contexts which French insists upon in his focal-conflict analysis. French takes the dream from the clinical context—but where he himself was not the analyst. The dreams he works with are firmly anchored in the current situation by his knowledge of the precipitating circumstances, the context within the hour: associations, previous and subsequent dreams, the entire text of the manifest dream itself, the longitudinal history and the process aspects of the analysis itself.

Why should these contexts be necessary for epigenetic analysis? Not only the meaning and purpose of the dream, but also our understanding of the processes of its formation in terms of what experience is elaborated in what fashion, with what particular adaptive-defensive outcome, depends upon the availability of some or all of these contexts I just mentioned. Without these contexts, Jones might at best find one aspect of the psychology of dreaming, namely, the occurrence of ego synthesis in dreams. Within these contexts, the relevance of Jones' approach would grow beyond the confines of dream psychology—possibly into a method of studying the ego's synthetic and integrative functions both in waking and sleeping state.

It is rather arbitrary to assume that the epigenetic approach of dream analysis is more likely to suggest connections between dreams and the psychological processes of sleeping life. Without the knowledge of the precipitating stimulus for specific

dreams, it is hardly possible to tell why a particular set of epigenetic crises is worked over by the dream and for what specific purpose. If we assume that such a stimulus is not left over from waking life, then we would have to postulate a psychology of dreams and dreaming that is independent of current waking experience. The evidence is overwhelming in the opposite direction, the idea of the third organismic state notwithstanding.

3. How about possible contributions to the metapsychology of dreams and dreaming via epigenetic analysis? If this approach alone or in conjunction with other approaches could pinpoint specific mechanisms of synthesis or integration, this might help us to reformulate some aspects of the metapsychology of dreaming in structural terms.

This and other possible contributions to the metapsychology of dreaming cannot be elaborated here. But, in conclusion, I would like to give you just one indication of how useful metapsychology might be in helping us evaluate some claims of REM dream research. Dr. Jones told me the other night that under the impact of recent findings he gave up the wish-fulfillment theory of Freud. Other participants in the symposium indicated agreement. If you examine Freud's wish-fulfillment theory closely, you might not rush into discarding it prematurely. I can only indicate here very briefly what such an examination might turn up: The wish is, metapsychologically, simply an increase of psychic energy (drive energy) that needs to be discharged for the achievement of equilibrium in the apparatus. It is only on the level of the psychology of dreams that this drive energy is seen as a *wish* in the conventional sense. Recent findings then, that the physiological concomitants of dreaming represent heightened arousal and its discharge, are completely compatible with the theory of wish fulfillment on a metapsychological level. We have no compelling reason *as yet* to abandon or change this.

Someone asked Dr. French yesterday how he would reconcile the repetitive cycle nature of REM dreaming with his focal-conflict theory—especially the idea of a precipitating stimulus. If REM is cyclic in nature and dreaming is associated with it,

then dreaming is not precipitated by a residual psychic stimulus from waking life. I think the answer is that *the stimulus precipitates the content.* It brings about *this particular dream* from all other possibilities—but perhaps not the dreaming. So here too I cannot see any contradiction as yet.

I therefore think that accepting something *new* or discarding something *old* in our dream theory should be more carefully done with constant reference to all *three* levels of discourse: the psychology of dreams, dreaming, and their metapsychology.

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Chapter 13

Influencing Dream Content

HERMAN A. WITKIN

WHEN THE RESULTS of even the very first studies with the sleep-monitoring method began to come in more than a dozen years ago, hopes ran high that effective systematic research on the content of dreams was at last possible. Much of the night's dream product, ordinarily lost, had become available for study, and new opportunities were opened for experimental manipulation of dream content. Yet, though research on sleep and dreaming, stimulated by the monitoring method, has reached flood proportions, work on dream content has been sparse.

There are many reasons for this—some conceptual, others in the nature of practical difficulties. One compelling reason is that those workers traditionally most concerned with problems of dream content—clinicians, and particularly psychoanalysts—are often wary of the dream product obtained in the laboratory and unsure of its usefulness in advancing our understanding of the dream process.

First of all, the argument goes, the experimental context intrudes in a myriad of ways to make the laboratory dream quite special and therefore unrepresentative of dreaming as it goes on "in nature." Even more important, to understand what the dream is really about, it is necessary to go beyond the dream report to its latent content. This, in turn, requires knowing the dreamer's associations to the dream and his biography and personality makeup (or what together may be called the "personal context" of the dream) in the kind of detail which only familiarity with the dreamer as a patient in

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therapy can provide. The couch therefore provides a far better route to the study of dream content than the laboratory.

Another factor, of a more practical nature, is that the study of dream content requires a careful inquiry of the subject both on each awakening and after sleep. This task cannot easily be left to a psychologically untrained technician; and in the light of growing evidence (to be added to in this presentation) that specifics of the experimenter-subject relation figure so much in the construction of the dream and in its communication (see, e.g., Whitman, Kramer and Baldridge [21]), there are serious difficulties in shifting personnel, with the technician gathering the dreams at night and the investigator himself conducting an inquiry into them in the morning. Effective research on dream content thus requires that the investigator himself stay awake nights to work with the subject. I do not have to mention how demanding such an enterprise can be, and it is particularly taxing for those in clinical work who have no choice but to see their patients during the day. The solution my colleagues and I have adopted, of using as subjects night workers whose sleep periods coincide with our work periods, is practicable only in very big cities like New York where there are large pools of night workers. Though this solution has had the additional side advantage of allowing us to study "people," for a change, and not only college students and psychiatric patients, we have found the task of recruiting and screening to be truly massive.

A final deterrent to research on dream content I might mention is that content analysis is typically very difficult. The discipline demanded in the systematic conduct of such work, requiring, for example, restricting the information allowed in a given analysis and maintaining blindness as to its source, is often particularly distasteful to the clinician in whose own work there are ordinarily no restraints on access to all available information and no nagging demand that each judgment be publicly anchored to its source in evidence. Content analysis is also expensive in terms of skilled personnel, time, and funds.

In our own work, we have found it necessary to recruit a veritable host of independent raters, each blind to some segment of the data and sometimes blind (or even deceived) as to its source.

These are among the factors which have deterred the participation in laboratory research on dream content of those who have the greatest knowledge of the area and the largest stake in its development. Though some of the more conceptual concerns cited are very understandable, so great are the advantages which the monitoring method brings to research on dream content that before casting the method away there is the obligation to make sure that the concerns are entirely real. Particularly challenging is the question of whether phenomena of dream content, as known to the clinician, together with the personal context which the clinician deems necessary in unraveling dreams, are accessible in laboratory-based studies of dreaming. I would like in this discussion to use a few strands of work from the complex study of presleep stimulation conducted in our laboratory in order to suggest that research experience indicates a favorable answer to this question. Even more, I would like to use these illustrations to suggest that the laboratory, by allowing the use of experimental procedures in combination with clinical techniques, enables us at a number of points to go beyond the couch to systematic checks on some of the brilliant insights which the couch method has yielded, and to new lines of inquiry as well.

The Presleep Stimulation Study

As background for considering the strands of work which I have selected for examination, I would like to outline very briefly the overall study of which they are a part. A report has already been made of a pilot investigation which Helen Lewis and I conducted[25] wherein the basic method of the study was developed and suggestive evidence obtained that our presleep stimulation method can influence dream content. The results of that pilot study were sufficiently encouraging to have led

us to repeat it in more systematic fashion and with a larger group of subjects. It is this systematic study, conducted by Donald Goodenough, Helen Lewis, Arthur Shapiro, David Koulack and others—already completed and now in the data-analysis phase—that I will outline.

Plan of the Study

The study focused principally on transformation of presleep experiences and dream recall, with particular concern for the way in which the personal variable of level of differentiation enters into these processes. The basic method of the study was to involve the subject in an exciting experience immediately prior to sleep, on some occasions, and a neutral experience, on others, and then to obtain his ensuing dreams on awakenings from all subsequent REM periods. For the problem of transformation of waking thoughts, feelings, and images in the content of the dream, the known presleep event (which becomes part of the day's residue) provides a "tracer element" which may serve to reduce the steps of inference required to unravel the dream. For the problem of dream recall, comparison of frequency of recall of relatively charged and relatively neutral dreams (made so by the preceding neutral and charged presleep experiences) permits a check of the hypothesis that repression of charged dream content is one cause of dream-forgetting.

The subjects of the study were twenty-eight men, all night workers (employees of the post office, the transit system, factories, airline terminals, etc.). Half of them were at the highly differentiated extreme of the differentiation dimension (to be discussed later) and half at the limitedly differentiated extreme as judged from performance on a battery of tests of perceptual field dependence and the figure-drawing test. A psychiatric screening interview was also used in subject selection.

Each subject had five monitored sleep sessions in the laboratory. After a first base-line session, in which he was familiarized with the laboratory and instructed in the procedure of the experiment, the subject returned for four additional sessions,

a week apart. In each of two of these sessions, an emotionally arousing film (Roheim's film of the Arunta subincision rite or a medical teaching film of the birth of a baby) was shown just prior to sleep and in each of the other two sessions a neutral film was shown (a London or a Far West travelogue), in a counterbalanced order. Dream reports were collected after awakenings from each subsequent stage I REM period. Information about affective reactions was obtained through recordings of autonomic activity (respiration, heart rate, finger-pulse volume) during viewing of the film and during each REM period, and by means of modified Nowlis mood-checklist responses given by the subject before and after each film and after each dream report. At the end of each sleep session the subject was asked to recall the dreams he had reported during on-the-spot awakenings and a detailed inquiry was conducted into his associations on his dreams and into his experience of the film. Following the entire series of sleep sessions, a biographical interview was conducted. At that time, the subject was asked to recall his dreams and to give his associations to each of a long list of elements selected from his laboratory dream reports. Finally, he was given a Rorschach and the Wechsler Adult Intelligence Scale, and a resting EEG was obtained.

Several advantages of the laboratory procedure we followed over the usual clinical situation for the study of transformation are perhaps self-evident. Not only does the experimentally induced presleep event provide a helpful referent for tracing connections between waking experiences and dreams, but there is the further advantage that dreams may be compared in relation to the contrasting presleep stimuli which preceded them. Such controlled variations in conditions are of course rarely if ever possible in the more naturalistic clinical setting. Moreover, because the monitoring method gives us access to much of the dream content of a sleep session—and close to its original form—study of the relation between a particular presleep experience and subsequent dreams is made efficient; reliance on ordinary morning-after recall in studying the effects of pre-

sleep stimulation presents the problem that too little of the dream product is available for study and in fact the dreams most affected, and therefore of greatest interest, may be especially subject to loss. There is the additional advantage of the laboratory situation, compared to the usual clinical setting, that data are available for a sizable number of subjects who have been exposed to essentially the same conditions. Finally, because the experimenter is in constant attendance on the sleeping subject, and so able to identify the onset of a dream episode, it is possible to obtain a record of physiological activity coincidental with the ongoing dream. The nature of the physiology accompanying particular cognitive and affective dream content during dreaming may be a valuable additional dimension in discriminating among different categories of transformation.

Nature of the Presleep Experience

Because our focus is on the content of the presleep period in its influence on dreams, it is important to inquire in more detail into the nature of the subject's presleep experiences.

Clearly, the presleep experience of any given experimental session cannot simply be equated with the content of the frames of the film used on that occasion; and, even when all subjects were exposed to the same film, we cannot assume that the presleep experience was therefore the same for all of them. We would define the effective presleep experience that a subject takes into his dreams with him as including, first of all, the constellation of feelings, thoughts, and images it sets off in uniquely individual fashion in him as a function of his personal makeup and history. It includes much more. The films were presented by a particular experimeter in the context of a complex laboratory procedure. Both the experimenter and the procedure he administers may be evocative of an array of strong feelings, determined by the subject's characteristic object relations, his concerns about self-exposure, the security of his heterosexual identity, and so forth. As one illustration,

which I will discuss in more detail later, several of our subjects reacted strongly in the final session to the impending separation from the experimenter. Their concern about it dominated their last-session dreams, sometimes making for high anxiety even when a neutral film was used on that occasion. To complicate matters further, though our stress films are potent contenders for a leading place in the day's residue and have the additional advantage of coming close to the time of sleep, they are still in competition for a part in the subject's dreams with other experiences and feelings in his ongoing life.

One of our subjects, for example, on the way to the laboratory one morning, phoned his wife in continued anger over a quarrel they had had the night before to tell her he would not come home that night. This same subject, on another occasion, had been reading a book on the St. Valentine's Day massacre just before the laboratory session and was clearly very excited by what he read. An episode from the book appeared in clearly identifiable form in a dream of that session, interwoven, however with symbolic representations of the birth film he had seen that morning. I will come back to this extremely interesting dream. Still another possible kind of component of a subject's presleep experience is the not infrequent carryover of the impact of the film of one session into the dreams of the next session. In fact, we have the impression that sometimes the subject's sleep sessions in the laboratory form a closed system so that his return to the laboratory is a provocation to continue his dream life where he had left off the time before.

If an effective study is to be done of the transformation of presleep experiences into the language of the dream, it is clear that the content of each subject's presleep experience must be identified for each of his sleep sessions. Out of an awareness of this, we included in our methodology procedures for making these identifications, and our impression is that they have succeeded in their purpose.

First of all, we attempted to evaluate a subject's on-the-spot reactions to each film by means of his before-and-after mood-

checklist responses, already mentioned. Another procedure was to obtain an account from the subject, during the postsleep inquiry, of his experience while watching the film. Included in this account was the subject's recall of the content of the film; though based on the same film, subjects' accounts varied widely in amount of recall, elements omitted or featured, distortions, etcetera. Also included were answers to such questions as how the subject felt and what had been going through his mind while watching the film. In addition, the ideas and fantasies associated to the film event were elicited by specific questions as, for example, after the subincision film, which is silent and without text, "What do you think they were up to?" or, after the birth film, "How does what you saw in the film compare to the ideas you have had of how babies are born?" With most of our subjects the discussion of the film also elicited such other associative material as recall of past experiences related to the film; their reactions to pain and blood; their feelings, in the case of the subincision film, about persons who engage in such practices, and sometimes about an experimenter who would show such films. Finally, additional information about subjects' reactions to the film came from their drawings "of anything that stands out in your mind from the film." Altogether, obtaining information was greatly facilitated by the strong relation the subject typically developed with the experimenter.

The sections of the postsleep interviews dealing with the films were turned over to an independent judge for separate analysis. This judge, who had no other information about the subjects, was asked to identify for each subject, for each of his film experiences, the components of the film which seemed to have had a particular impact upon him; his emotional responses to the film, if any; his manner of handling these feelings; and any evident idiosyncratic reactions. Still another way in which the judge assessed the subject's emotional reactions was by himself filling out a mood-checklist form for each film account. Finally, complementing these analyses, a timed

running record of the content of each film has been prepared and is being compared at present by Dr. Goodenough to the running physiological record made for each subject during viewing of the films. By determining points in the film which coincide with apparent "hot spots" in the physiological record, a further opportunity is provided to identify for each subject individually the specific film content which had a particular impact upon him. The points of the film so identified may then be compared to the points identified as salient by our independent judge in the subject's account of his film experience. While it will be of value to establish congruence of points identified as charged by these two methods, instances of lack of correspondence may be of equal interest. Thus, if during the birth film (which is divided between a scientific account of the Malmstrom vacuum extractor and a vivid visual description of the delivery of a baby), a subject shows marked physiological arousal at the beginning of the delivery scene but his account shows no feeling about this part, or is even limited to the scientific parts alone (as happened with some of our subjects), the operation of denial may reasonably be inferred.

As for other components of the subject's presleep experience—his reactions to the laboratory and to the experimenter and salient experiences and feelings brought to the laboratory with him on each test occasion—our extended postsleep inquiry at the end of each session seems, for the most part, to have provided the data needed for their identification as well. Examples will be given in the course of the present discussion.

The postsleep inquiry has also yielded biographical information sometimes useful in elucidating idiosyncratic reactions to the film. (I might say here, that because it uses the subject's dreams as a point of departure, and typically takes place in the context of a developed relation with the experimenter, the postsleep inquiry goes much farther in obtaining salient information about the subject than is ordinarily possible in the usual interview with the experimental subject.) As an illustration, one subject, in describing the birth film during the

postsleep period, commented on the doctor's examination of the baby's feet. There is no such episode in the film. It turned out, from the biographical material, that this subject had a young child with a club foot, under medical examination at the time for a treatment decision.

Though we have a large task ahead of us in devising systematic and efficient methods of data analysis, reflecting our intent we seem to have been able to gather the data needed for determining in some detail the effective presleep experience which preceded a subject's dreams on each test occasion.

Data Available and Approaches to Data Analysis

The study we have done has left us with masses of data for each subject. I would like now to weave my way through these data by focusing on several specific issues for which they are especially useful. In the course of this examination, I would like not only to illustrate some of the advantages of the laboratory situation for the study of these issues over the clinical settings where they have usually been explored, but to show as well that a laboratory-based study allows us to obtain information about the dream and the dreamer which clinical sense and clinical experience suggest to be important for the understanding of dream processes. For each issue, I will describe in some detail the data we have been able to obtain on its behalf and the ways in which the data are now being analyzed. I can only wish at this point that the invitation to contribute to this volume had come a couple of years later, when our data analyses will be farther along, so I could tell you as well about the actual outcomes of these analyses.

Effect of Charged Presleep Experiences on Emotion in Dreams

A basic premise underlying the study was that a charged experience immediately prior to sleep would excite the subject and so increase emotion in his subsequent dreams. With regard to the transformation issue, we had the idea that under these conditions transformation would proceed in identifiably differ-

ent ways than with a more neutral stimulus and hence a calm subject whose dreams are more benign. This concept made it important for us to identify extent of emotion during each presleep event and during ensuing dreams. The concept underlying the study of dream recall led to the same requirement. The concept was that charged dreams, made so by the stressful presleep event, would more likely be subject to the forces of repression and so more often forgotten. To check this concept, it is also necessary to identify dreams or, if they are completely forgotten, REM periods which are charged.

The variety of assessment procedures used, some already described, permitted us to identify emotional responses during the presleep events and during dreams, and thereby to determine the success of our attempts at experimental manipulation of affect in these periods. Considering first emotional reactions to the films, our subjects' Nowlis mood-checklist responses have already been analyzed and do show the expected significant before-to-after increase in affect for both stress films as compared to the two neutral films. The analyses now being made by Dr. Goodenough of the physiological recordings will provide additional evidence on subjects' emotions during viewing of a film. Another sign of the overall impact of the charged films comes from their effect on sleep. Our subjects took significantly longer to fall asleep (as judged by time to the first spindle) after the stress films than after the neutral films. Similar evidence comes from a study by Baekeland, Koulack, and Lasky [1] in which the effects of the subincision and London films on uninterrupted sleep were investigated. The stress film significantly increased the number of spontaneous awakenings from REM periods (but not from NREM periods); and it also increased the frequency of eye movements (REM density) during REM periods. Both effects suggest that the stress film induced a specific REM-sleep disturbance, presumably via anxiety generated during the film experience and carried over into subsequent dreams.

As for affect in the dreams themselves, an analysis of the dream reports by the Gottschalk method revealed the expected

difference between dreams following the charged and neutral films. Our dream texts were scored for us by Mrs. Caroline Winget,* of Dr. Gottschalk's group, according to the method developed by Dr. Gottschalk and his collaborators for assessing anxiety in verbal material.[23] Total anxiety scores were significantly higher in dreams after the charged films than in dreams after the neutral ones. Subjects' mood-checklist responses did not, however, show significant difference between the two categories of dreams.† Finally, the records of physiological activity during dreams will provide further evidence on emotion in dreams.

The evidence already on hand suggests then that the laboratory method does make possible the experimental manipulation of affect in dreams,‡ and that we are in a position to assess individual dreams for their emotional charge. In view of the central importance of feelings in dream activity, these are significant advantages for the study of dream content.

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* We are deeply grateful to Mrs. Winget for this work.

† In seeking to understand this outcome, we noted that nine of our subjects showed no increase in mood-checklist anxiety from before to after viewing of the charged films; in other words, for them this method gave no evidence of any affective reaction to these films themselves. When these subjects were excluded from the analysis, significantly greater anxiety in stress-film dreams was found. It is important that the stress-film dreams of these same nine subjects did show elevated anxiety when assessed by the Gottschalk method, and these subjects also took longer to fall asleep after the stress films. Though these subjects were thus apparently made anxious by the charged films, they were less likely than other subjects to tell about their anxiety directly, as they in fact do in the self-assessment method of the checklist. Their anxiety can however be picked up by more indirect indicators, of the kind involved in the Gottschalk procedure and in the speed-of-falling-asleep criterion.

‡ Foulkes and Rechtschaffen,[8] using aggressive and neutral films as presleep stimuli, found no evidence of an increase in aggressive content in dreams following the aggressive film, although there were signs of other more general effects. One possible reason for the difference in outcome between their study and ours may be that our charged films, for a variety of reasons, carried a bigger "wallop." Another may lie in a difference in the nature of the feelings at issue. Whereas aggressive feelings generated by witnessing an aggressive scene may be discharged in the watching, anxious feelings are less likely to find release in this way, and so may persist into subsequent dreams.

Representation of Presleep Experiences in Cognitive Content of Dreams

Having demonstrated that our charged presleep input "goes in" with a sufficient thrust to increase the emotional content of the dreams that follow, let me turn to the issue of the fate of the presleep experiences in the cognitive content of subsequent dreams.

Obtaining Data from Dream Reports and Postsleep Inquiries

In each on-the-spot awakening, we sought as complete an account of the dream experience as the subject was able to give us, covering parameters of the experience we regarded as salient; and in the postsleep inquiry we tried to obtain as full a picture as we could of the personal context, as I have been calling it, by eliciting from the subject his associations to the dream and his relevant personal history. In doing all this, we introduced specific controls over our methods of obtaining and using these different kinds of information. One source of pressure toward making our procedure uniform from subject to subject and session to session came from the fact that Dr. Goodenough and I shared the running of the subjects. This led us to try, as much as we could, to make equivalent both our roles as experimenters and the sequence of events during the subject's stay in the laboratory. So, for example, it was a constant feature of our procedure that in the morning we met the subject in the lobby of the building and accompanied him to the laboratory. This is not as picayune as it may sound since different routes from lobby to laboratory exposed the subject to different sights and sounds. One route, which we avoided, went through the animal quarters and an inadvertent encounter one subject had one morning with the crowing of a rooster lodged there was followed by the clear appearance of the rooster in a dream that day, beautifully used,* however, as a vehicle for represent-

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* The "creativity" shown in their dreamwork by some of our subjects who were quite unsophisticated, in terms of education and experience, has been impressive. This interesting phenomenon lends itself to inquiry in our data.

ing his experience of the subincision film, which was the "feature" that day. I will come back to this dream later.

To be more specific about the method of obtaining the subjects' accounts of their dream experiences, the first base-line night, without a film, was used as I already mentioned, to train the subject in *dream reporting*. While discouraging an attitude of simply going down a prepared checklist, we instructed the subject to include in his running report of the dream a description of the surroundings, including other persons; any feelings in himself and others; his own activity; activity going on around him; manner of representation of the self in the dream; color and sound; and extent of vividness of the dream experience. With regard to self-representation, we particularly emphasized the distinction between experience of the self as a participant or as a detached observer of one's own activity. The "distancing" implied in the second role, we hypothesized, being a way of dissociating the self from ongoing feelings, might go with an absence of physiological arousal in the dreamer, even though the dream had emotional content; and, as I will discuss later, we also considered that distancing might be a stylistic quality of the dreaming of some persons. The base-line night was also used to instruct the subject in the specific meaning of the mood-checklist words which were shown to him in his bedroom by a slide projector controlled from the adjacent laboratory.

By the second run (the first experimental session), the subject had been trained to start reporting anything that "may have been going through your mind" as soon as the awakening buzzer sounded, without waiting for word from the experimenter, and to include in his report the various parameters of experience just listed. In order to obtain a report as free as possible of directing clues from the experimenter (guided perhaps by his *own* associations to the dream content), criteria were established for allowable, nonleading questions which could be asked, if necessary, following the subject's spontaneous report. Included among these "legitimate" questions were those which, simply by topic heading, reminded the sub-

ject of areas he may have omitted from his spontaneous report. Also considered legitimate were questions which sought to stimulate the subject to go on, required particularly with a less articulate or very drowsy subject. These questions typically took the form of simply repeating the last phrase the subject had uttered. Included as well were questions which sought to round out the account of formal features of the dream (as opposed to content) where they had been left incomplete in the spontaneous report. Thus, if the subject had described two of three characters in the dream, he might be asked to give a description of the third one. The spontaneously presented material, plus the material elicited by legitimate questions, represents reports as free as possible of intrusion by the experimenter. I will refer to these reports as "dream texts."

As I will describe later, for many of the analyses we are doing, we conduct a first round with these dream texts alone, supplemented in subsequent rounds with further information elicited by additional inquiry. It goes without saying that beyond allowed questions, the experimenter was free in on-the-spot inquiry to ask any additional questions necessary to clarify points in the dream, although the material thus elicited was not considered part of the dream text.

The extended *postsleep interview* with the subject was used, as already mentioned, to inquire further into each dream experience of the session as well as into associative and biographical connections.

The subject's recall of his dreams of the session, given at the outset of the postsleep interview, in comparison to the earlier on-the-spot reports of the same dreams (omissions, additions, shifts in what was made salient, and even the very "title" assigned to the dream in its initial listing), often seemed very informative in further elucidating these dreams.

Our method of obtaining the relevant personal context for each dream was typically indirect. It mainly took the form of encouraging the subject to talk about items in the dream. Thus, if "Cousin Joe" was a character in a dream, the subject

might simply be asked, "Could you tell me something about your Cousin Joe?" and from there the discussion was allowed to go wherever it led naturally. Particular questions, directed more specifically at obtaining associations, were found useful. One which proved especially fruitful was, "Can you think of some other time [in waking life] when you felt just the way you did in the dream?" This question was often productive of connections, where the pursuit of cognitive elements was not. Sometimes congruence between a given dream and the antecedent presleep experience could be shown to lie precisely in the identity of structure of feelings in both. I will later discuss a dream which illustrates how useful the pursuit of feelings may be in helping understand a particular dream.

Other data, again indirect, helpful in some cases in connecting an element of a dream to a component of the presleep experience, were the drawings obtained from our subjects of images from their dreams. Embedded in the subject's discussion of the film experience was another source of leads for identifying connections; and still another source was the subject's answer to the question, put to him at the very end of the discussion of his dreams and the film, about any connection he saw between them. Finally, we once again obtained associations to the dreams by offering the subject elements from all his laboratory dreams for association immediately following the biographical interview conducted after completion of all five sleep sessions. This procedure often seemed to yield associations different from those obtained to these same elements in the laboratory sessions. It may be that different routes along the associational network emanating from these elements were activated when they were considered after the subject's early life experiences had been aroused in memory. The difference in associations elicited in the context of the dream and in the biographical context is an interesting research problem in its own right.

This enumeration of the kinds of data we have been able to obtain around the dream reports of our subjects suggests how far it is possible to go with the experimental subject in a labora-

tory study of dream content in developing the relevant personal context in depth. As might be expected, of the kinds of data obtained, that which may be of specific aid in identifying the process and product of transformation of the presleep event varies from dream to dream.

Data Analysis

As one means of exploring the process of incorporation of presleep experience into the dream, an inventory has been prepared of items (themes, symbols, metaphors) that may be expected to occur in dreams following exposure to each of the films we used. The inventory includes film-specific scenes and events. Its development was also guided by the expectation that certain "universal" themes (castration, birth, death, sexual activity, pregnancy, delivery, traveling, sight-seeing, vacationing, etc.) would be evoked in dreams by the thematic content of our particular films. Accordingly, the inventory includes commonly reported representations of these universals (as injury to phallic objects to signify ideas of castration, or tight spaces to symbolize the womb). The inventory is also partly empirical in origin, drawing on items we observed occurring in dreams following the stress and neutral films both in our pilot study [25] and in a study of the penis-erection cycle by Karacan, Goodenough, Shapiro and Starker.[12] The inventory thus composed, quite extensive in scope, is now being applied to all our dream texts (limited, you will recall, to the subject's spontaneous report plus his responses to "allowed" questions) by a judge, a clinical psychologist who does not know that the dreams he is analyzing were preceded by the viewing of films. To aid application of the inventory, each dream text was first broken up into units of experience. The guiding idea in this unit identification procedure was the "précis"—that is, the number of units needed to represent the main events of the dream experience. Each unit was also identified as central or peripheral in the dream, to help determine whether one or the other kind of unit more commonly serves as the vehicle for different sorts of transformation.

After the inventory has been applied to the dream texts, and the results placed on record, the associative material obtained in the postsleep inquiry will be added and a second round of assessments made by the same judge. Finally, an open study will be conducted of the entire body of material gathered from each subject in order to trace in as much detail as possible the process by which components of the presleep experience find transformed representation in the content of subsequent dreams. Included in the body of material available for each subject for this full open study are (1) his dream reports for the base-line session and the four experimental sessions; (2) the postsleep inquiry of each session, conducted along the diverse lines described earlier; (3) the initial screening interview; and (4) the postseries biographical interview, together with the additional associations to dream elements gathered after this interview. In the course of tracing transformations with the aid of this full body of information, an attempt will be made to identify the range of categories of transformation, and the tendency, if any, toward specialized use of some or others of these categories by particular individuals.

The inventory method, applied to both the dream texts, and to the dream texts plus their associative connections, if it works out as anticipated, will of course help to demonstrate in a systematic way that waking experiences influence dreams. There are other and (to us) more important objectives of these analyses. First, the inventory method provides a means of checking systematically the validity of some aspects of the psychoanalytic theory of dreaming. The analytic theory of dream work, and clinical knowledge gained through its application, served as a main guide to selection of many of the items included in the inventory. To the extent that the theory is valid, we should find the expected increase in certain items in particular dreams, as predicted from the theory. Another use of the inventory procedure, as well as of the open-study method of establishing transformed incorporations of the presleep experience, is to help identify dreams which have been more affected or less affected in their cognitive content by the

presleep experience. Dreams differing in degree of "saturation" with the presleep experience may then be compared with respect to affective content, indicators of autonomic activity, REM-state variables (as amount of eye movement), and formal dream characteristics (as vividness). Conversely, dream reports segregated as showing outstanding autonomic activity may be examined for kinds and frequencies of inventory items. Identification of patterns among these variables in individual dream episodes should be of particular value. As one example, it may be possible to determine whether some kinds of transformation of a stressful presleep experience may work in such a way that there is no residue in the dream of experienced affect and/or aroused physiology.

To continue with the listing of possible uses of the approach we are following for problems of dream content, the results of the inventory analysis and the open-study method of identifying incorporations may also be profitably applied to study of the interrelation of dreams of the same night as well as to study the extent and manner of use of dreams earlier and later in the night as vehicles for dealing with the charged presleep experience. Knowing the presleep input provides a useful referent for examining continuity in the dreams of a night; it may help guide an inquiry into how a given presleep experience is handled at different points in sleep. Observations in our pilot study [25] suggest that successive dream reports of the same night may often be interpreted as representing sequences of drive or conflict discharge. Still another question that may be put to our data is, what does a given dream accomplish for the dreamer in "working off" the assault of the stressful presleep experience?

You will notice that our planned study of the process of transformation is proceeding stepwise toward use of ever-larger bodies of data. The first step is limited to the dream texts. While this material has the advantages of being quite free of influence of leading questions from the experimenter, it suffers the difficulty that associations, often so important in identifying latent dream thoughts, are lacking. The second step, in which the associative inquiry and some personal history are added,

gives clues to the latent meaning of the dream; and the third step, in which the personal context is further enlarged, adds to the fund of clues. I am aware that when we use the associative and biographical material of the postsleep inquiry, we may be damned by our experimental brethren on the right, who have been legitimately concerned about the experimenter's role in guiding the subject toward a sought-after result.*† And if we do not use this material, we may be charged with naiveté by some of our clinical brethren on the left, who feel that without associative material it is not possible to penetrate the dream's disguise. I hope the stepwise procedure we are following will keep us in the good graces of both wings of psychology, in addition to making good research sense.

Because the manner of use of the personal-context material is such an important methodological issue in dream-content research, I would like to digress here to cite several impressions formed about this issue in the course of our own work with such material. First, although making inferences about connections between presleep experience and dreams from dream texts alone carries the comforting thought that the data are relatively free of experimenter influence, there is sometimes the even stronger accompanying discomfort that the connection inferred is highly conjectural. Not infrequently in such cases, adding a particular element from the associative inquiry makes the connection so unmistakable that "all reasonable men would agree" on it, so that the judgment of a connection is now made with greater confidence. Second, evidence useful in identifying con-

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* This is not a problem in analyses we are doing where judgments based on data from the postsleep inquiry (as kinds of transformation emphasized by a given dreamer) are used for comparison with variables derived from independent sources of data (as assessment of his defenses from his Rorschach) with regard to which the judge evaluating transformations was blind.

† When planning the study, we considered keeping the experimenter blind about the film of the session. The possibility was rejected as unrealistic in several ways. As just one obvious problem, since subjects themselves might spontaneously refer to the film (as we in fact found they frequently did), to maintain the experimenter's blindness the highly inappropriate step would need to be taken of requesting the subject never to mention the film.

nections often emerges from the inquiry through standard questions and procedures employed with all subjects or as by-products of freewheeling discussion, so that it is difficult to think of it as prompted by the experimenter's wishes. And third, addition of the personal-context material may sometimes help avoid error by showing that particular inventory items which seem probable-sounding from a reading of the dream text are in fact not relevant to the particular dream.

It may be useful to give excerpts from the records of a few of our subjects which illustrate these points. These excerpts may add as well to a sense of the kinds of data gathered in this study.

The first example is a dream reported by one of our subjects on his fourth awakening during the session in which he saw the birth film prior to sleep.* He dreamed of "some kind of writing on the kitchen sink, an old kitchen sink . . . the inside of the sink, I couldn't make it out. . . . The kitchen was like a long, real long hallway. An old-style kitchen you'd say. . . . (The sink was) one of the old bowl types. No cabinet . . . with faucets against the wall, wall faucets." (There was no evidence of anxiety in the subject's mood-checklist responses for this dream.) The judgment that the imagery of the bowl-type kitchen sink with faucets symbolizes the female reproductive system seems a reasonable one. This judgment was strongly reinforced, however, and reliance on inference greatly reduced by evidence added in the postsleep inquiry.

First, when asked at the beginning of the postsleep period to report all the dreams he had, he spontaneously added a salient

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* This is a medical teaching film, in color, prepared at the Downstate Medical Center. It begins with a description of the Malmstrom vacuum extractor and discusses its advantages as a method of delivery. The next part shows the exposed vagina and thighs of the woman, painted with iodine. The arm of the obstetrician is seen inserting the vacuum extractor into the vagina; the gloved hands and arms of the obstetrician are then shown pulling periodically on a chain protruding from the vagina. The cutting motion of an episiotomy is also shown. The baby is then delivered with a gush of blood. The film ends by illustrating that only a harmless swelling of the skin of the baby's head results from the vacuum-extraction method.

element in recalling this dream: "I was dreaming of a sink. One of those old type sinks, wall-hung sinks. There was an inscription on it. I think something like '*a woman's toil is never done*' [italics added]. Something like that. . . . Well, I was trying to figure it out, what it was anyhow. But the sink was really worn out. This happened to be written on the inside. That's why I couldn't really make it out." We cannot tell, of course, whether the addition of the words of the inscription is a secondary elaboration, but whether it is or not it adds a link which more firmly connects the dream with the birth theme of the film.

At a later point the subject, a transit worker who did odd plumbing jobs to supplement his income, related the dream more directly to his own personal experience when, in response to my request that he make a drawing of the sink, he said: "Yes, that I could do, I could draw. This got to do with my trade, plumbing, you know. . . . Well, I've pulled these off, that's why, pulled these off different apartments." Still later in the postsleep inquiry, he provided an even more specific connection between the dream and his personal experience as a plumber. I asked him, after reviewing with him his dreams and his reactions to the film, "Do you think the film had any effect on any of the dreams you had?" He answered, "None. The film had no effect at all on that, the dreams."

I then asked him to take a moment to think of each dream in turn as I listed them by number. When I asked about the last dream, he responded: "The sink? [laugh] What's that got to do with it? Well, maybe one time in that room, when I was working as a plumber I went to the maternity ward and I stopped a sink that was all charged up fulla' blood like that. . . . *Examiner* (*E*): "From?" *Subject* (*S*): "Well, I don't know from what. I don't really know what it was. It was cogulant [*sic*], you know. The blood was like a jelly." *E*: "And it really got stuck in it?" *S*: "That's what it was. I just put my fingers in there and I washed it away" [laughs].

At another point in the postsleep discussion, he made a comment which strengthened still further the sense of a connection

between the faucet in the dream and the birth film. *E*: "Which part of it [the film] struck you particularly?" *S*: "He grabbed the baby by the head and he pulled him out and he came out just like, it's like *as if you open a faucet* [italics added], and all the blood came shooting out after it."

In the next example, the postsleep inquiry added evidence connecting dream and presleep film by a quite different route—by drawings the subject made. The dream the subject reported on his first awakening of the birth-film session ran as follows:

> *S:* Um [pause] this car drives into the um . . . my dream. . . . . This is my dream. This car is in a driveway. It's a limousine. . . . And um . . . it seems that the limousine is all . . . is run by my brother. My brother drove the car there. And it seems to have uh . . . someone in the car that they want . . . rubbed out. So uh . . . you know, it's all . . . it's all . . . I'm dreaming about everything I read in the book. I don't know if it means anything. Anyway I'll continue. . . . In the car . . . is a dead man . . . gangster . . . and he uh . . . he can't get out of the car in the position that the car's in, cause the doors won't open right away. . . . And we can't get out of the car really, because . . . it seems that the gangsters are watching the car. . . . And we slip out . . . they'll shoot us. Now uh [pause] we're caught there in the car, my brother and I [pause] and we're looking for a way out. And it seems that there's a newspaper reporter . . . telling our predicament to the people. In the crowd. And that's the way it was when you woke me up. [Long pause] I don't know whether it was a light day or not, because I was . . . we were inside the garage. I don't know where the garage was. [pause] We must have driven in it at some point. I can't remember . . . surroundings . . . where it was driven from. . . . Um . . . I know it was an old limousine. It had a small window in the back. [pause] And my brother's and my situation was he was looking out the back, through the back door, and I was looking out the back . . . the front door or something. . . . We had something very valuable, I don't know what it was, that the uh gangsters wanted, cause they wouldn't let us get out of the car. And they couldn't come in because they were afraid of the cops, I guess, the gangsters. Mm . . . and that's about all.
> *E:* What about the feelings in this dream?
> *S:* Well, we were . . . scared, a little bit. [pause] I was frightened of getting shot.

E: Could you describe your surroundings further?
S: Uh . . . no not at all. We were in a very tight space there, in the garage.

This dream, an anxious one according to the subject's mood-checklist responses, was an amalgam of several identifiable sources of experience, including, in addition to the presleep birth film, his reading of a book about the St. Valentine's Day massacre that morning while waiting for the experiment to begin (the incident I mentioned earlier). I cannot take time to consider this rich, complex dream beyond one occurrence in the post-sleep discussion which provided more convincing evidence of its birth reference than hinted at by its setting in "a very tight space." After he had told me what he could recall of this dream, I asked him to make a drawing of the body in the car which, by the way, became more central in the retelling of the dream in the postsleep session. His sketch is shown as Figure 1. What you see is the result of several modifications, mainly through erasures, which served to give the figure an increasingly more fetus-like posture. As he was executing the changes, he made comments like: "The trunk was bent even more than this." "The leg was under him more." "A little more crumpled up." "Legs should have been even more bent."

Much later in the postsleep inquiry, immediately after he had given an account of his recollection of the birth film, I asked him "to draw anything at all that comes to your mind from the film." The product is shown in Figure 2. A little later, after we had discussed his film experience further, the following exchange took place between us:

E: Now, the dreams that you had, and that we've been talking about . . . do you think they had anything to do with the film?
S: I don't know. They were all exciting dreams.
E: They were exciting dreams?
S: Most of them . . . had some sort of uh . . . excitement in them. One way or the other. So maybe uh . . . that had something to do with it. . . . Maybe my book had something to do with it.

Fig. 1.



E: Any of the more specific things in the dreams that might have been connected with the film?

S: Not that I know of. No.

E: Well, you want to think a moment about the first dream? In the garage, car, the body in the back of the car. . . . Anything there?

S: With the picture? The film? No . . . you mean about the position of the baby? And the way the man was in my dream? Both uh bent over?

E: What about that?

S: It could have been. Why not?

E: Here's the picture you made earlier of the man in the back of the car . . . and the baby [showing the subject both drawings he had made]. What do you think of them?

S: Very easily [pause] . . . could be the same . . . true. . . .

E: The two pictures?

S: [pause] Yeah, very very similar.

E: What do you think of that?
S: Amazing. The influence.
E: Had you thought of it before, that the dream might have been connected?
S: Not at all.

The final example illustrates still another route—as in the preceding examples, idiosyncratic to the individual subject—by which evidence elicited in the postsleep inquiry more convincingly connected dream content and antecedent film. In this instance the evidence took the form of similarity in ideas embedded in both the reports of the film and dream experiences. The dream was a fragment reported on the subject's first awakening of the session in which he saw the subincision film.*

* This is a film made by Geza Roheim of a rite practiced by an aboriginal Australian group, the Arunta. It shows a number of older men preparing for the initiation of four young men. All the men are naked. Each initiate lies down across the backs of the other initiates, who are perched on all fours close to each other. An incision is made along the ventral surface of the penis with a sharp stone. The bleeding penis is then seen being held over a fire. The faces of the initiates clearly reflect their anguish. A hairdressing ritual is also shown. The film ends with a rhythmic ritual dance.



Fig. 2.

I can tell you about the sense of it rather than anything particular concerning it. I think I was in a car and I was being, uh, quote, you know, "taken for a ride." And in the back seat of a large black car. I don't know what I had done to merit it, and, uh, I mean by "taken for a ride" I was about to be exterminated. I, I, the sense of it was they were taking me away, I was being sent away. . . . I don't remember whether the car was moving, or where it was heading, or who was in it, uh, except I was not alone. I was in the back seat.

In his mood-checklist responses, the subject described himself as jittery, fearful, and clutched up during this dream; and in his next regular sleep session at home he had one of the worst nightmares of his life. The nightmare was so bad, in fact, that he was afraid to go to sleep at all the following day, and he considered breaking off as a subject (but did not). He was unwilling to tell me the content of this home dream when I saw him next.

The idea of "being exterminated," it may be inferred, takes up the castration theme of the subincision film. Here again this judgment is placed on a more solid foundation of evidence when the postsleep inquiry is added to the dream text.

In his spontaneous recall of the dream in the postsleep session, he said: "Everything was *black* [as was everyone in the film]. I know there were other people in the car, *all males*" [again as in film]. He was "*flanked* by people . . . there were *two gentlemen*, one on each side of me in the back" [corresponding to the two men holding the initiate in one of the scenes of the film] (italics added). Reflecting the connection between the "two gentlemen" of the dream to the film experience, we find him saying later in describing the film: "One person stood at his head, over, between almost on his shoulders and the other one held his legs."

The postsleep inquiry had the following landmarks which more firmly connected the extermination theme of the dream with the subincision film experience.

In the course of our discussion of the dream, I asked the subject: "In connection with what kinds of circumstances do

you usually think of the word *exterminated*?" His reply was: "Well, usually what comes to mind is exterminating . . . the only sense that I uh, that I, I very rarely use the word, uh, is the Jewish, uh, people during the second world war. *Exterminated* is the, usually the word used. Not murdered so much, or killed. It's a particular form of murder. And extermination is used there. I don't, I don't use that word very often."

Somewhat later in the postsleep inquiry, in the course of his account of what he remembered of the morning film, the subject commented: "I thought it may be a circumcision, but I really didn't know what it was. And I still don't know exactly what it was." Subsequently, we had the following exchange which began with my taking up his comment that the film shocked him:

E: Shocked at what?

S: At uh, the see, at first I was not sure what they were doing. I thought possibly castration. Possibly this was a punishment. Possibly had they done something bad. Uh, I was shocked at the pain those people were made to endure for whatever the reason was, I didn't, it was later as that happened to several people until I realized these people were not resisting, that it seemed to me that it was a, a fertility rite.

E: You also said something about circumcision?

S: Yes, I thought, uh, uh, you know what was it. Were they being circumcised at that late age? Was there, uh, I knew they weren't Jewish [laugh], so I really don't know. I was puzzled . . . or curious would be it.

E: Well, what did you decide about that, about circumcision?

S: Well, I well, oh gee, well, I, I don't know what was done. I don't know what was done, and uh, I assume it was a cutting off of something, but I got the feeling that it wasn't going to affect them sexually.

Still another piece of evidence produced by the postsleep inquiry, adding support to the inference made from the dream text of a connection between the castration theme of the film and the extermination theme of the dream, comes from his description of himself in the dream in his postsleep recall as "being forcibly taken away, although I didn't *resist* or I put

up no struggle" (italics added). The very same word was used in his description of the initiates given in his postsleep discussion of the film: "These people were not *resisting*" (italics added).

The subject's references to Jews in talking about his film and dream experiences, references appearing at points quite distant from each other in the inquiry and seemingly made in passing, lend conviction to the judgment that the two experiences are connected. Moreover, in the inquiry, the subject tells us that he openly thought of castration while watching the film so the inference from the dream text that the film implicated castration for him is no longer a matter of conjecture.

In these three vignettes, I have tried to show that judgments of connections between presleep event and dream may be made at a higher level of confidence and with less inference when evidence from the postsleep inquiry is added than when the dream texts alone are used. They may have shown as well that this additional supporting evidence may "pop out," as it were, at any of a variety of points in a conglomeration of diverse lines of inquiry, rather than through persistent leading questions by the experimenter, so that the experimenter's guiding role is in fact minimal.

The procedure we are following, of first analyzing the dream text alone and then together with the personal-context material, may have the side advantage of contributing to a better understanding of what it is about the meaning of the dream that can be understood from the manifest dream content alone, and what it is that depends upon identification of the latent dream thoughts as well. The issue is perhaps not quite as settled as might be imagined from the commonly encountered view among clinicians that, in the absence of associations, dreams defy interpretation. The suspicion that, counter to this publicly stated theoretical view, many who work with dreams do in fact rely heavily on the dream text alone in probing its meaning has been well expressed by Erikson[7]: "Unofficially, we often interpret dreams entirely or in their parts on the basis of their manifest appearance. Officially, we hurry

at every confrontation with a dream to crack its manifest appearance as if it were a useless shell and to hasten to discard this shell in favor of what seems to be the more worthwhile core." The negative consequences of the "official position," as seen by Erikson, are especially relevant to current dream research: "When such a method corresponded to a new orientation, it was essential for research as well as for therapy; but as a compulsive habituation it has since hindered a full meeting of ego psychology and the problems of dream life." The variations built into our design (in presleep input, in emotional state of the dreamer, and in kind of dreamer), the availability of many dreams of each subject, and the method of stepwise study of each dream (with and without associations) should together help identify the features of manifest dream content which are useful in the interpretive process. My hunch is that the outcome of such a systematic study will be to lend credibility to what Erikson has labeled the "unofficial position." *

Aside from the issue of what the dream text by itself may tell us of the sense of the dream, there is the related question of what it may tell us about the character of the dreamer. And for this second question again, I believe the kinds of data we have gathered may be useful. In particular, it is likely that examination of many dream texts authored by the same person, obtained under the variety of conditions used, should make it possible to identify salient dimensions of his "life style." Included here are characteristic feeling state and view of the self in relation to the world. For example, one subject projected in his dreams a picture of himself as anxious and fearful, and as the passive intersect of forces often overwhelming and acting against him. This subject gave a similar view of himself, although not quite as extreme, in his ongoing relations with the experimenter. Another aspect of life style which may be inferred from dream texts lies in the nature of basic life themes

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* To the extent that we can "live off" dream texts alone in understanding particular dimensions of the dream, and do not need to go after associations, laboratory research on dream content is facilitated.

and conflicts. Thus, one of the subjects in our earlier study [25] repeatedly represented himself in his dream in rivalry with others, most often a sibling surrogate. This had in fact been a basic issue for him in his family constellation while growing up and had become generalized in his interpersonal relations.

This line of inquiry into life style, as inferred from dream texts, should help determine the value of dream texts in personality diagnosis. Such an endeavor is aided in our study by the availability of extensive biographical and personality-test data for each subject against which to check aspects of life style inferred from dreams.

Resurrection of Early Childhood Experiences in Anxious Dreams

A specific hypothesis we are examining in our data is that anxiety-laden dreams are more likely to draw on the dreamer's childhood experiences than neutral dreams.

From some preliminary observations, we formed the impression that dreams following the stress films tend, in their content, to go back to events in the dreamer's early childhood. Sometimes the subject's very earliest memory is implicated. It is as though charged points (earliest memories are often charged) in the network of associations set off by the exciting presleep event are particularly activated in anxiety dreams. We may recall here that the themes of both charged films are heavily drive-laden and provocative of strong impulses, the management of which comprises central tasks for the growing child from very early in life. Thus, both films are sexually exciting; they show mutilation of the body, thereby arousing feelings about physical aggression; and they provide opportunities for "looking" at usually forbidden sights. In addition, one of them is specifically evocative of castration anxiety and the other of feelings and fantasies about birth.

I would like to give a few examples of how childhood experiences have figured in dreams following the stress films. I cite these only to give you a sense, once again, of the kinds of data it has been possible to gather; proof of the thesis that charged

dreams do draw on childhood memories must await the outcome of the analysis now being done.

In the first example, we find the very same theme in both the subject's earliest childhood recollection and in one of his dreams. The dream, reported on his first awakening of the session in which he saw the birth film "had to do with a bus, a New York City bus, the ones that are kind of painted red, not the green ones, but I don't know what was happening . . . you know it's the older, smaller more compact." ("Small compact bus" and "red" may both be references to themes from the birth film.) In the biographical interview, conducted thirteen months after this dream, the subject was asked, "Would you say what your earliest childhood recollection is and then whatever recollections there are from this earlier period?" He replied: "Well, I remember riding on a tricycle and wanting very much to be a bus driver when I grew up. And at every third tree I would come to a stop and discharge my passengers and drive on, on my tricycle. Uh [inaudible] at the time we lived in Queens, you see. It was a private home, and uh I remember one good friend who lived across the street who was 2 or 3 years older."

An association the subject gave to the bus dream in the postsleep inquiry of the session in which that dream occurred provided additional linkages between the dream and his earliest recollection and suggested as well that the fantasy behind that recollection still had considerable force, sufficient in fact to lead him to a rather irrational act as an adult. The association came in response to my question, put in the course of our postsleep discussion of the bus dream, "Does anything come to mind in connection with buses like that? Any experience you had any time with that kind of bus?"

S: Yes. Yes. About five months ago, four months ago possibly, uh on Monday evenings I work a station called Northon's Point, which is . . . in Coney Island. And there's a bus that runs all night, just one bus, and it's a short run, about eight minutes. And he goes and comes and then leaves again. All night. So working there every Monday night I

became friendly with the bus driver, and kind of kidding one time, like he started talking as I was riding the bus. And uh . . . we always kidded about that, one time, I . . . the person who relieves me so I can go for lunch came just as the bus was about to pull out. And I jumped on it. There was no one on the bus, no passengers. It was about 3:30, and I drove the bus that run. And it was a very exciting thing. We both could have been fired, and this guy was taking an enormous chance. But that's my only experience with the bus.

E: And was it this kind of bus?

S: Yes, it was that kind of bus. As far as buses are concerned, I always enjoy riding in them. I always prefer to take a bus rather than a train. And uh . . . before I owned a car I would just take a bus ride to Philadelphia or to Washington whenever I had the money. So buses have always been, uh, fun. It's a fun thought for me, a bus.

The next dream I want to cite comes from another subject after he had seen the birth film: "I dreamt of a backyard with a, uh, a driveway and in this yard was a huge grapevine. It was spread out through most of the yard. And under the grapevine was a concrete table. Now the only one I recognized in this was some family acquaintance. Now apparently I haven't seen him in a good many years. I don't know if you've ever seen grapevines that are in backyards. It covered most of the yard and, uh, one portion was this long concrete table. Even, you know, the top, the bottom, everything was made of concrete." He added that there were two other people in the dream, one of them a woman, neither of whom he could describe. During the part of the postseries biographical interview (conducted 9 months later) in which elements from his dreams were presented for association, his response to *grapevine* was "Picnic. The reason I say picnic, this woman my father went out with had a *huge grapevine* and she had a *concrete table* under it. I was down there once or twice and had dinner and we ate under the grapevine" (italics added). The visual image in the dream is identical with the visual image in the association which took him far into his past.

This same subject provides another striking example of a dream, coming after a charged film, in which the theme of an early recollection was taken up. The dream, reported on his third awakening after seeing the subincision film, and which he himself characterized in the postsleep inquiry as "the highlight of the night," was about a rooster,* an easily inferred symbol of the male phallus. This inference is strengthened by his characterization of the rooster. "One segment of the dream," he reported, "quite ironically dealt with the fact that I walked in with my grandmother into a pet shop and wound up buying a rooster. . . . My grandmother was going to buy the rooster. One of those multicolored things" ["predominantly black," he added later]. "And of course I was opposed to it on the grounds only of course that I said, 'Well they're very hard to raise, they're dirty,' and so forth and so on. She says 'yes' but . . . 'look how alert this thing is, they're very smart looking, you know multicolored thing.' Well we wound up buying it, and uh, plus they bagged it like they would a dead chicken. Uh, we finally got this thing in the bag and we waited a few moments and he was out of the bag. He was very ornery. . . . When he was put in a bag he, uh, broke out of the bag and now another party came along and picked him up in the broken bag and all and put him in another bag because, uh, you know, uh, just, uh, in other words, he was just bouncing, trying to get out of this bag."

Taking "rooster" in its *double-entendre*, this one, you will agree, is quite a guy, either way you look at him!

This dream connected with a very early memory of the subject which was in fact specifically reinstated in the dream. In association to "chicken market," in the postseries interview (conducted 9 months later) he produced a highly specific image from childhood: "21st Street between 3rd and 4th Avenue. This was where the chicken market my grandmother used to bring me to [was located]. This was as a little boy." (He had lived there for several years, after the age of 3; and the

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* This dream came from the subject, mentioned earlier, who had heard the crowing of a rooster in our animal quarters.

intensity of his feeling for his grandmother is reflected in his statement: "Even after I got married, my wife and I would have a spat, and I'd go down and see my grandmother.") To continue with the early memory: "And she'd go into the chicken coop and pull a chicken out herself and she had to feel it. What she was feeling for I don't know. But she says she could tell whether the chicken's good or not by feeling it. . . . Well, it would be a Saturday morning and I would go down with her. And nobody could get her a chicken. Usually they would have men to pull out the chickens, and the scales would have pieces of string on to tie the wings or legs and weigh the chicken. Well, this didn't happen with my grandmother. She had to go and pull the chicken outa' the coop and feel it, or if in the event he would pull it out, she had to feel it before this man was allowed to weigh it. Of course I don't know what she was feeling for, but if it didn't feel right, back in the cage it went." When asked if he knew what she was feeling for, he went on: "No, she would say in Italian, '*la ozza*,' which is the neck, or the feedbag in the neck. But she was feeling down somewhere around the stomach, so, uh, she was feeling for something else. Because I don't know whether they feel down [in] that position where the chicken's eggs are, which is right about here. She would feel here and tell me it was the chicken's neck. Maybe she was afraid she'd have to go into detail about the boy and the girl chicken, I don't know" (laughs).

One kind of datum we have that is of particular value for checking the possibly greater prevalence of early memories in charged dreams is the response given by our subjects when asked for their earliest memories in the postseries biographical interview. This section of each subject's interview has been excised from the total interview transcript and given to an independent judge, together with all of that subject's dream texts. This judge again does not know that the dreams were preceded by the viewing of films, and the request made of her was to identify any connections, direct or inferred, that may be evident between the earliest memory and the dream texts.

After this analysis has been completed, the judge will be asked to do a second round with the material from the postsleep session added. In a third round the postseries biographical interview with the subject will also be included in order to identify other early life experiences in addition to his earliest memories, which may be represented in his dreams.

If our impression that early memories are often represented in dreams following the charged films * is in fact correct, a potentially promising line of inquiry will have been opened, leading to such questions as these: For what reasons and by what process does the relatively charged dream dip into the dreamer's past? What determines the dream's choice of a particular early memory out of the vast grab bag of early memories available to it?

As a corollary to the hypothesis that charged dreams are likely to involve early childhood experience, we have the hypothesis, now also being checked, that dreams following the neutral films are likely to reflect the person's ongoing life experiences and hence more often set at work or at home. This fits the concept that the neutral films leave the person freer to deal with his ongoing affairs and problems in his dreams than do the charged films which by their prepotence are more likely to push the subject's other present business aside and preempt his dream life.

Stylistic Differences in Dreaming

Still another issue we feel may be pursued with profit in the data our study has generated is that of stylistic differences in dreaming. The clinician's focus on individuality should make this issue a particularly cogent one for him, and yet in clinical

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* While comparison of early memories in dreams following neutral and charged film experiences is an appropriate first step, we have the means for a finer analysis. The data on physiological indicators, mood-checklist responses and Gottschalk ratings available for each dream will permit us to segregate *individual* dreams as charged or neutral and to compare these for incidence of early memories. Obviously, not all dreams following the stress films can be expected to be charged, nor all dreams after the neutral films to be calm.

writings on dreams we find little discussion of it. The view seems to be that the standard known mechanisms are used in common by all of us in the dream work field. While this is certainly true, it is also possible that, as with defenses which we all also share, individual dreamers may differ identifiably in the way in which the dream work is conducted. It is of particular benefit to the study of stylistic differences in dreaming that we have a sizable number of dreams for each of our subjects, and, moreover, dreams following upon different kinds of presleep experiences. It is also of help that our subjects fall into two contrasting groups in their psychological makeup, highly differentiated and limitedly differentiated.

Our inquiry into stylistic differences in dreaming is proceeding from two complementary vantage points. On the one hand, we are following hypotheses suggested by known differences between more-differentiated and less-differentiated persons in their general functioning and in characteristics of their dreaming as well. On the other hand, we are letting the data themselves lead us to whatever stylistic difference can be identified. The latter more empirical approach has much to recommend it at a time when we have little systematic knowledge about stylistic differences in dreaming.

One example of a more empirically oriented inquiry into stylistic differences in dreaming is the comparison we are making of subjects' handling of charged experiences in full wakefulness and in the dream. I have already described the analysis being made of the subject's postsleep account of each of his film experiences. Included in the assessment of his reactions to the film, you will recall, is an estimate of what about the film was especially provocative, how the film hit him, and his manner of handling the feelings evoked. Though this analysis is still underway—a theme I am afraid I find myself repeating over and over again—it is altogether clear even from just a reading of this material that subjects differ widely in their reactions to the stress films. These differences are reflected in both the cognitive and affective aspects of their experiences. For example, with the subincision film, some subjects were clearly

and openly overwhelmed, made jittery by what they saw, upset by the sight of the dripping blood, themselves pained by the sense of the pain the initiates in the film must be suffering. Others showed strong feeling of anger in reaction to the very same sights, directing their anger against "stupid people who would do things like that." Still others took a highly intellectual approach to what they beheld, recounting to the experimenter only the more scientific aspects of the whole procedure and reporting no feeling about the film. Another parameter of differences in responses to the film was in the occurrence of perceptual distortions and idiosyncratic fantasies. Thus, one subject saw the subincision procedure as turning men into women. The record of a subject's physiological activity during each film adds another parameter for identification of patterns of dealing with charged experiences in the waking state. Thus, one of our subjects, who dwelt at great length on what a warm positive feeling he had while watching the birth of the baby, showed rather marked physiological activity during the film (at the points where the vagina was first shown and the head of the baby emerged), giving some credence to the clinical impression that he was denying the anxiety the film generated in him.

Simultaneously with these analyses of the content of subjects' film experiences, the dreams of these subjects are being independently assessed, along the lines already described, for evidence of extent and manner of incorporation of the presleep event. Along with this assessment, we already have for these dreams the results of the Gottschalk and mood-checklist analyses of feeling; and the physiology accompanying the dreams is being assessed. All this information, supplemented by the insights gained from the full open study of each subject's entire record now being conducted by still another judge, should make it possible to form an impression of how the charged presleep event was handled by each subject in the dream state.

Thus, the possibility exists of comparing for each subject his manner of coping with a charged experience at the two different levels of consciousness. It is a reflection on the state

of knowledge about individual differences in the way in which aroused waking experiences are continued into the dream that we find ourselves hard put to make specific predictions about the direction which particular effects may take. For example, if a person is shown to react directly and strongly to a charged experience in the waking state, will he also show a strong open reaction when that experience is "taken up" again in the dream? Or is it possible, on the contrary, that because he did allow his feelings to be engaged and expressed in the original experience, his business with it was consummated so that there remains less feeling to be dealt with in the dream? Similarly, is denial of feeling in a waking encounter with a provocative event matched by the use of denial when it recurs in the dream? What is, in fact, being asked in all these questions is the relation, within individuals, between modes of defense in the waking and dream states.

Let me illustrate now the second approach we are following to the study of stylistic differences in which our data are being entered with hypotheses derived from past work on the personal variable of differentiation.[26, 24] You will recall that to highlight this dimension of individual differences, the subjects of our study were selected as being highly differentiated or limitedly differentiated. Before describing the special relevance of this dimension to the study of stylistic differences in dreaming, it is necessary to say a word about the nature of this dimension.

In the course of studies conducted over a number of years, we have identified marked stable individual differences in clusters of interrelated characteristics, which we conceive to be differences in extent of psychological differentiation. In perception, extent of differentiation is reflected in degree of field dependence or independence. Perception is field dependent when it is dominated by the organization of the field as a whole, so that parts of a field are not experienced as discrete. This global mode of perception is indicative of limited differentiation. In contrast, in a field-independent style of perceiving, parts of a field are experienced as discrete from organized background indicating developed differentiation. We have devised a spe-

cial battery of perceptual tests (the rod-and-frame test, the body-adjustment test, and embedded-figures test) to assess individual differences along the field-dependence-independence dimension. Individuals whose field-dependent perception suggests limited differentiation in their experience of the outer world also give evidence of a global body concept, thus showing limited differentiation in this area as well. They also tend to lack a developed sense of separate identity, reflected in their moment-to-moment reliance on external sources of information for self-definition. This characteristic, together with a global body concept, is indicative of a limitedly differentiated self. Finally, persons with a field-dependent style of perceiving tend to use such global defenses as denial and repression; in contrast, field-independent perceivers tend to use specialized defenses, as isolation and intellectualization, indicative of developed differentiation. Thus, people are self-consistent across diverse psychological areas in their tendencies to function at a more-developed or less-developed level of differentation.

Studies have already shown a number of specific differences between more-differentiated and less-differentiated persons in characteristics of dreaming, relevant to the present study; and other known differences in functioning of these two kinds of individuals suggest still other ways in which particular aspects of their dreaming may be different. It is because of this that the differentiation dimension provides a good vantage point from which to start an inquiry into stylistic differences in dreaming. I would like to review some of these known and predicted differences in dreaming and outline the kinds of analyses that are planned—analyses for which the data we have gathered seem particularly well suited.

First on the ground that repression is one cause of dream-forgetting, we might expect that less-differentiated persons, who have been shown to use repression as a characteristic defense,[24] would be less likely to remember their dreams than differentiated persons. This expectation has been confirmed in a number of studies by now, all of which considered morning-after recall of dreams at home. Dr. Carol Eagle, in an unpublished

study, found such a connection in one group of ten-year olds and in another group of seventeen-year olds. Dr. Harriet Linton, in an unpublished study, found the same relation in a group of college students as did Schonbar.[17] This factor has also been confirmed, again with college students, in an analysis of the data obtained in a study by Lewis, Goodenough, Shapiro and Slesser.[14] Considering frequency of dream reports in home diaries which these subjects kept, it was found that seven of the eight most-undifferentiated subjects in their group of forty-six subjects were nonreporters; there was only one nonreporter among the eight most-differentiated subjects.* Of all the personality variables that have been investigated, the differentiation dimension is the one which has most consistently distinguished dream reporters from nonreporters. As I will discuss a little later, the method of presleep stimulation has provided an experimental means of checking the value of the repression hypothesis in explaining the repeatedly observed difference in incidence of nonreporters among more-differentiated and less-differentiated persons.

Another connection between differentiation as a personal variable and style of dreaming was observed in the study of Lewis *et al.*[14] Less-differentiated persons were found to show significantly more eye movement in their REM periods. Two possible interpretations of eye movements have been suggested. One is that a greater amount of eye movement reflects more extensive scanning activity in the dream.[5, 6, 15] On this basis the meaning of the observed relation between differentiation and eye movement might be that less-differentiated persons who, in the waking state, rely greatly upon external sources for self-

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* It is interesting that, in the laboratory, the undifferentiated nonreporters became reporters. Recently, Baekeland, in an unpublished study, in our laboratory observed that whereas his more differentiated and less differentiated subjects did not differ in number of elements contained in dream reports given after REM-period awakenings, dream reports in the morning showed significantly fewer elements for limitedly differentiated subjects. This observation provides some clues as to where we might look for the causes of the observed tendency of less differentiated subjects to be nonreporters at home.

definition, show more scanning of the environment in their dreams. A second interpretation of increased eye movement has been that it is symptomatic of a more aroused state.[18, 11, 19] The evidence from the study we have done may help us choose between these two alternatives. On the one hand, we have obtained data on a variety of indicators of excitement level of the dream. On the other hand, we have data which speak on extent of scanning. The latter data come from both the detailed dream reports we obtained and the subjects' own estimates, made after their mood-checklist responses, of how "busy" and how "active" each dream was. ("Dream busy" was defined as very frequent changes of scene, "dream active" as much going on in the environment and in proximity to the dreamer.)

In addition to showing less eye movement during REM periods, more-differentiated persons, according to Cartwright,[3] also tend to spend more time in REM sleep and their dreams tend to be more imaginative (or, as Cartwright puts it, they are "better dreamers").* Cartwright, Monroe and Palmer[2] have reported some evidence which suggests that differentiated persons are also more likely to show increased compensatory REM time following a period of REM-sleep deprivation.

Still another lead for thinking about differences in dreaming—particularly in methods of transformation—between more-differentiated and less-differentiated persons lies in the difference between them in the sense of separate identity. Lewis *et al.*[14] found that the less-differentiated subjects in their study significantly more often dreamed openly about the laboratory situation. This observation suggests that extent of openness or disguise in incorporations made of presleep stimulus may be one kind of stylistic difference worth exploring in our data.

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* Congruent with the observation that less differentiated persons show more eye movement and spend less time in REM sleep is the finding of Antrobus, Dement and Fisher[1a] in a study of uninterrupted sleep that more eye movement and less REM sleep time are also characteristic of home nonreporters, who, as we saw, tend to be limitedly differentiated.

A further examination of the records of the eight most-differentiated subjects and the eight most-undifferentiated subjects in the Lewis study revealed differences as well in the *kinds* of incorporations made. The less-differentiated subjects more often had dreams concerned with their relation to the experimenter. The relation with the experimenter figured discernibly in the dreams of six of the eight undifferentiated subjects, but in the dreams of only one of the differentiated subjects. It is likely that the undifferentiated subjects became more involved with the experimenter in the laboratory, as we have found they do with other persons in general, and this involvement is carried over into their dreams. I will outline a little later an analysis we have started of individual differences in the evolution of the subjects' relations with the experimenters over the five experimental sessions, focusing in part on differences between our more-differentiated and less-differentiated subjects.

Still another lead to the study of stylistic differences in dreaming, suggested by the differentiation variable, is in the nature of representation of the self in the dream. In the dream, there is a change in the functioning of the self in the organization of experience. From known differences between more-differentiated and less-differentiated persons in extent of development of the sense of separate identity and degree of reliance upon others for self-definition, we may expect certain broad congruent differences in manner of representing the self in the dream. One difference that might be anticipated has already been observed by Eagle who, in a personal communication, related that in the dreams of more-differentiated persons the self is likely to be represented as an active participant. The data of our study allow us to check this finding. Still another possible kind of difference in representation of the self in the dream is suggested by the observation[13, 27] that relatively differentiated persons are likely to use a mechanism of "distancing," in which, as described earlier, the self stands aside as an onlooker of its own ongoing activities. This observation

leads us to expect that the distancing phenomenon, which we have frequently observed in our dream protocols, would be more common in the dreams of our differentiated subjects. As still another difference, we may expect the enforced involvement with others, characteristic of less-differentiated persons, to be reflected both in extent of representation of others in their dreams and in the nature of the relationships found.

Even a cursory reading of our collection of dreams suggests that individual differences along these dimensions are prominent. For example, one of our subjects, mentioned earlier, repeatedly represented himself in his dreams as the more or less helpless, and often frightened, object of the actions of other persons. Another subject, in contrast, most often portrayed himself as the active agent in relation to others, the one typically in charge of affairs. Finally, considering the nature of body concept, an important aspect of the self, we may expect the known difference between more-differentiated and less-differentiated persons in articulation of body concept to contribute to differences between them in their ways of handling bodily experiences in their dreams. Since the thematic content of both our charged films strongly implicates bodily experiences, data for such an analysis are abundantly available in our dream protocols.

These then are some of the leads, derived both from the data themselves and from differentiation theory, with which we are beginning our study of stylistic differences in mode of transformation and in other characteristics of dreaming.

Dream Recall

Our concern with this problem in the present study reflects the long-standing interest of my collaborators, Donald Goodenough, Helen Lewis, and Arthur Shapiro in this area. Their earlier programmatic research on this problem (see Goodenough[9] for a review of this research) has revealed some of the situational factors affecting dream recall; and it has also identified some of the different kinds of failures of dream recall

as well as different kinds of nonrememberers of dreams. A next step in our procedure was to explore the role of repression as a factor in the forgetting of dreams. This step has been taken in the present study.

The reasoning behind what has been done was, in sequence, first, that the charged presleep films would increase anxiety in ensuing dreams. This expectation, as we saw, has been confirmed by the Gottschalk analysis of our subjects' dream reports and is now being checked. The physiology accompanying dreams following the charged and neutral films suggest that this expectation is also likely to be confirmed in the physiological data. Second, charged dreams being particularly subject to the forces of repression would more likely be forgotten. This hypothesis was made specific to one kind of failure of dream recall previously identified by Goodenough, Shapiro, Holden and Steinschriber [10]—ND reports. These are reports in which the subject says he has been dreaming but cannot remember any content. Such reports are distinct from so-called N reports, in which the subject says he was not dreaming, and T reports in which he says he was awake and thinking, though actually asleep of course. The phenomenology of the ND reports seems more consistent with the operation of repression than the phenomenology of either N or T reports. An analysis of our data already completed has shown, as expected, that ND reports were significantly more frequent in sleep sessions after charged films than in sessions after neutral films. Supporting the concept that ND reports are qualitatively distinct from the other kinds of dream-report failures, there was no difference in frequency of N reports following the two kinds of films. A third step in the logic of this study was that ND experiences would be accompanied by charged physiology,[11, 18, 19] signifying anxious content and hence a dream which is an appropriate candidate for repression. A check on this third step awaits completion of processing of the physiological data.

A fourth and final step in our reasoning concerned likely individual differences in susceptibility to forgetting. As noted

earlier, because of their observed tendency to use repression as a defense, and to forget dreams on morning-after recall, our undifferentiated subjects may be expected to give more ND reports after the stressful presleep experience than differentiated subjects. In this step a connection first suggested by correlational studies is being checked through experimental manipulation of relevant variables.

To the experimenter who has been witness to a subject's unsuccessful struggle to hold onto his dream as it is being "sucked under," there is a dramatic feeling of being a direct observer of repression in action. It is a great advantage to be able to be "in," in this direct way, on a process we are interested in studying; and it is a methodological advance to have the means for controlled experimental research on phenomena so complex as defenses.

This work on dream-forgetting as a function of repression provides a particularly good example of how much farther we can go in the laboratory than in the ordinary clinical setting in conducting controlled systematic inquiry into significant clinical issues.

Evolution of Subject-experimenter Relations

In the course of the five sleep sessions, many of our subjects developed a strong, evident relation to the experimenter. Many features of our procedure contribute to a rapid intensification of this relation: the large amount of time which subject and experimenter spend together; their joint extensive involvement in material (dreams) which is highly personal to the subject and about which he frequently has intense feelings; the setting in which the subject-experimenter interaction takes place, particularly during the postsleep inquiry (in a bedroom, with the subject lying in bed).

As in therapy, the relation develops in an emotion-laden context; and again as in therapy, the subject has considerable leeway to fantasy the experimenter in a variety of different roles. In these regards, it seems not inappropriate to think

of the subject's developing relation with the experimenter as congruent, in many ways, with the development of transference in therapy. In fact, the pace of development of the subject-experimenter relation seems to be considerably stepped-up, compared to what may ordinarily be expected over a corresponding period of time in therapy.

Consistent with the findings of other experimenters (for example, Dement,[4] or Whitman *et al.*[22]), we have observed that our subjects often dream about the experimenter. We also have the impression that through his dreams in successive sleep sessions the subject reveals in rich detail his changing feeling toward the experimenter. The dreams we have obtained from our subjects yield information along such parameters as the role in which the experimenter is cast, the quality of the dreamer's feelings toward the experimenter, and the openness of representation of the experimenter, the occurrence of separation anxiety in dreams of the last session. Further, as was to be expected, our subjects seemed to differ from one another in the courses which their relations to the experimenter followed over the five sessions of the study, reflecting perhaps their characteristic object relations. Thus, in their dreams, and in their waking behavior as well (although in their dreams they seemed to tell us a good deal more), some subjects gave evidence of a quickly established, strong, open, positive bond with the experimenter, with indications of marked feelings of dependence. Other subjects began by being ill at ease and suspicious, relaxed as the session progressed, and at the end appeared to regret the termination of their services as subjects. Still others appeared to grow evermore resentful toward the experimenter, particularly because of the felt intrusion on their "privacy" and found the sessions increasingly burdensome.

All these impressions together have led us to believe that focused study of the evolution of the way in which the experimenter is represented in subjects' dreams over the five sleep sessions may be fruitful for an understanding both of the process of transference and of individual differences in its quality.

Such a study, which is now in progress, follows the microgenetic approach advocated and so profitably used by Werner[20] in other areas of psychology. Illustrative of the kinds of evidence being examined in this study, we are exploring so highly specific a characteristic of individual differences as the point at which the experimenter appears, in his own proper person, in the subject's dreams over the sleep sessions. The issue here is analogous to the one investigated by Rosenbaum[16] in his study of the first open representation of the analyst in the dreams of psychoanalytic patients. On the basis of past studies, already cited, we expect to find differences on this variable between our more-differentiated and less-differentiated subjects. With regard to this personality dimension, we also expect less-differentiated subjects, in keeping with their tendency to personalize events, to be more likely to connect the experimenter with the films, as the person responsible for showing them, and to mingle feelings evoked by the film with feelings about the experimenter. We also expect to find evidence of a more intense relation with the experimenter by the end of the series among less-differentiated subjects, with strong concerns about separation, an affect which may overshadow feelings engendered by the film of that session.

To give you a sense of how rich dreams are as sources of information about a subject's changing relations to the experimenter, I would like to cite some last-session dreams which speak on the subject's feelings about ending his relationship with the experimenter.

One kind of dream we have encountered among our subjects in the last session dealt with their being replaced by the next subject. This is illustrated by the following dream obtained on the third awakening from a subject who had been shown the Far West film prior to sleep:

> I . . . I was in the hospital here, doing my sleep study that I'm doing now. And uh . . . It seems that I was . . . I had been awakened . . . for some reason or another, and the room was open. And you were busy with another . . . with another patient. And while this was taking place a friend of mine came into the

room looking to see you. And looked at me but didn't recognize me until I spoke to him. And then we talked about how I looked with the attachments and things. Then . . . why he didn't recognize me and such. And then when you came in he asked . . . seems to me that he asked for aspirins or salt or something of that sort. . . . I would say the setting was almost the similar setting that what this room is but only to me it seems that there was more, uh, more of an . . . of an opening to it, you know, cause people would walk in and out.

In the postsleep inquiry of that sleep session, when the subject was asked how he felt about it being over, he replied: "I guess you gotta' move on. Can't stay on with me. But like I said, I [would] like to do it again some time. You know the more you do, the more . . . I've learned a lot since I've been here. Like you were telling me this morning, maybe I can take over the job [of helping the experimenter attach the electrodes which I said jokingly he could now do after going through five rounds of the operation]. I thought some about that afterwards. I said, well if he . . . took time out with me, probably I could." At another point in the postsleep inquiry he commented that he "enjoyed every day. . . . I learned something . . . couldn't ask for better comfort. . . . It's an experience I'll never forget." He also remarked to me about "the patience that you have, . . . you take so much time, you know."

The subject's dream about being replaced by another subject clearly reflected his feeling about breaking off what he experienced as a positive relationship to the experimenter. He held the hope that this might be resumed, possibly being made even closer through his becoming my assistant. Reflecting his feeling about the impending separation in the dream, not only was I—in my proper person—"busy with another patient" (a friend who, in fact, did not even recognize him), but our normally private setting was replaced by a quite public one in which people could come in and out of his bedroom. That this last element of the dream might also have reflected some negative feeling about the self-exposure involved in the pro-

cedure is suggested by the way he put this aspect of the dream on recalling it in the postsleep inquiry: "The room where I was seems was more open because people could come in and actually look . . . at me." Another possible indication of negative feeling toward the experiment, conveyed by the dream, came from the statement he ascribed to his friend who, after first not recognizing him, took another look, and said, "Oh, my God, what happened to you?" (referring to all the wires attached to him). There is also a suggestion that his way of dealing with his feeling in the dream was to make light of it. In the postsleep inquiry he said of the encounter with his friend in the dream: "I remember it striking me as very funny, you know. Why does he come here for salt?"

The last-session dreams of another of our subjects are of special interest because the similarity of some of them to the last-session dream of the subject just considered suggests that feelings evoked by a particular situation may help "make" the same kind of dream in different persons. This subject, who also had seen the Far West film prior to sleep, reported on the first of his four REM-period awakenings a vague dream:

> Something to do with the experiment . . . something about being the last week. . . . I was dreaming about some sort of course . . . it seemed to me like a school. . . . There was not even a trace of the sleep lab at all and yet in the dream it felt like it was the last week of something like a study. . . . [The course had to do with] insects rather than animals. . . . Just about the time I guess I was waking up it seemed like to hit me all of a sudden that this thing was phoney. It was some kind of a jest that, uh, there was no such . . . insects, that I was the object of some kind of uh, like horseplay or joke.

On his third awakening, this subject reported a more extensive dream on the same theme which in his postsleep account he labeled as "the interesting one" of that sleep session:

> I was dreaming that I was in this room right here, and uh . . . you seemed to have opened the door while I was still sleeping, and there were other . . . oh, quite a few other people coming in, and you were showing a particular, one man who I didn't seem to be able to understand. . . . Uh . . . he was gonna' be one of

these experimental, uh, sleep patients. And he spoke for some time, which I couldn't understand, so you hadda' tell me what he was saying. And he wanted to know whether this is uncomfortable, with the wires. And I answered him, I says, no it's just like a Band-Aid[T]. You don't feel a Band-Aid[T]. And uh . . . let's see . . . you had brought him into the room while I was sleeping. To show him the operation. And I think in the dream I woke up while uh . . . you and he were standing in this room. Now . . . shortly . . . later, while . . . uh . . . while you, instead of Dave . . . Dave was not in the dream . . . while you yourself were removing the, uh, electrodes and the tape from me, while I was still in this bed here rather than uh . . . getting up. I was still laying down and you started to remove the stuff while this fellow was here. . . . Uh . . . all of a sudden the room that I'm in . . . uh . . . seemed to . . . become bigger. I mean it didn't become bigger in the dream. As it looked like it was growing. But all of a sudden, bang, I was in a different room quite a large room . . . oh, about 20 feet wide, that would be from head to foot, the way I was sleeping . . . and possibly 50 feet long. And in this room were some tables and some uh . . . well I don't know if they were nurses or . . . interviewers. But there were at least three or four other men who seemed to be being interviewed . . . but it . . . it didn't seem they were being interviewed for the sleep studies. It looked like they were giving blood, or not . . . volunteering to give blood. Now uh . . . I'd say there were about 3 or 4 of these people. However, they all were wearing shabby clothes. . . . And uh . . . they all appeared to be like alcoholics who were gonna volunteer to give blood. Uh . . . I don't think they're allowed to do it, but uh . . . to give blood so they could get more money to uh go out and drink. They were all ruddy-faced and I'd say very shabby. They all had this tacky . . . not tacky . . . olive drab fatigue jacket on . . . loosely hanging. None of them fit, and they all had this appearance they were just there to get money to go out and get drunk.

As with the first subject, we have here a dream in which I, again in my proper person, am busy with the dreamer's replacement, who is in fact an inferior character. He cannot be understood (a "foreign type," he later said, with an "accent, . . . mumbling, . . . an elderly man . . . over 50 . . . actually he would have been too old for the experiments"). The other characters in the room were further degraded in the postsleep

account, described by such words as *rummies*, *rumpots*, *drunks*, *derelicts*. It is interesting that in the dream the subject made his relationship with me an even more personal one than it actually was by having me remove the electrodes, instead of my assistant who normally performed the task; and, interestingly, reality was further distorted in his postsleep account of the dream when he had me dealing with his *feet* as the locus of the electrodes. This personal and ordinarily private situation was, as with the first subject, converted into a very public one, with a greatly enlarged room containing many people. As an example of overdetermination, we find in the postsleep inquiry that the setting of the dream was on a Friday, "a funny thing . . . Friday is usually the end of the week. And I was wondering how come he came in while I was still sleeping, because you couldn't get a full day with him." It became clear later that Friday signalizes for him an ending time. In his irregular work schedule, as he put it, "I actually think of the last day I work, regardless of what shift I might pick, somehow it's a feeling that it's Friday."

That he was sorry to see his part in the experiment ending was consciously evident to this subject, as it was to the first one. In the postsleep inquiry, he spoke of being "regretful that the experiments were over. . . . Anything different from the ordinary run-of-the-mill thing is . . . interesting. Get out of the humdrum existence. . . . Now this is different and something to look forward to." In fact he, like the first subject, was eager to continue, asking if we "ever test anybody over again." It is an interesting commentary on this subject's concept of himself as a participant in the study that, in talking about coming back, he offered me advice (not bad advice perhaps) on how to improve the experiment. "Showing a picture in between the sleep period might have more of an effect than at the beginning." The first subject, it will be recalled, thought of himself as a possible participant as a research assistant.

It is possible that the reference in the dream to the many people in the room may in this subject also have reflected con-

cern about self-exposure. In speaking of the laboratory procedure in the postsleep period he commented, "Here you have somebody actually watching you." As still another similarity between this subject and the first one, here again we find a dream (his first one), rooted apparently in serious feelings, made into some kind of joke.

Finally, I would like to consider a subject whose last-session dreams stand in striking contrast to those just considered. The first two subjects, as we saw, expressed in their dreams their negative feeling, apparently modest in intensity, about the reality of the ending of their relationship with the experimenter, and held the hope that they might return, perhaps in the elevated roles of assistant or adviser. In some of their dreams, distance was given to the feelings which generated the dream by addition of the element of a joke. The experimenter appeared in their dreams as the person he actually is, with relatively minor distortions of his role.

In the dreams of the subject about to be considered, in contrast, extremely strong feelings toward the experimenter were generated, and the subject's relationship with the experimenter entangled with his ongoing object relations to the point where he and the subject's mother appeared as fused. In fact, this subject, in contrast with the first two, seemed aroused throughout the experimental series and at the same time very involved with me in a dependent way, telling me in the postsleep sessions about his current personal problems in considerable detail and with much feeling. As we were walking out of the laboratory together at the end of the session before the last one, he turned to me and suddenly asked how my family was. (My family had never before come up in any of our discussions.) This query seemed to be a somewhat awkward attempt to make my relationship with him a more personal one. On the morning of the last session, when he first came in, he commented, "Today is the playoff, the last game," referring to the World Series; it was an equally appropriate reference to the termination of the experimental series.

On the second of his seven REM awakenings of the last session, in which the Far West film was shown, he reported this dream:

> I dreamt that, um, that you were asking me questions about a dream. And, um, it was either you or uh, must have been you I guess. You were asking me questions about the dream. And I don't know, you began feeding me very fast. I don't know what it was. Some food I guess. Supper or something. You kept continuously feeding me. Faster and faster and faster. I couldn't stop. And, uh, you woke me up, while you were feeding me very fast. . . . I think all there was in there was a desk and a chair . . . just, uh, two people were in the dream. You and I. . . . I was a little upset because I couldn't tell you what I was dreaming at all. So, uh, then when you started feeding me fast, well it seems that, I don't know, got a little exciting, uh, I was wondering when you were gonna stop. . . . You were sitting by my desk. No, I was sitting by your desk. I was sitting on a chair next to your desk. And you kept asking me, "What did you dream, what did you dream, what'd you dream?" And at the same time you started feeding me very fast.

He described the dream as very vivid and his feeling in it, on the mood-checklist, as "jittery." (None of the last-session dreams of the first two subjects, concerned with the ending of the experiment, showed any anxiety in their mood-checklist responses.)

On his third awakening of the last session, the subject reported a dream which continued the theme of the second one just given:

> This dream is very much like the other dream I had, where the people in this hospital, or people over here, were feeding me at a faster rate than I could eat. They're stuffing it in my mouth, the food. And when I woke up, all I could remember is dreaming of a . . . dreaming of someone feeding me too fast, and someone helping him. And that's all I can remember of the dream.

He further described the setting as "one of the rooms in the hospital . . . the place I was in tonight . . . only it was wider." (As did the other two subjects, he enlarged the bedroom in his dreams.) He also said that he and I were the only two people

in the dream; he was sitting down and I was standing, and I was feeding him with a spoon. In his responses to the mood-checklist he described his feelings in the dreams as both jittery and fearful.

As in the last-session dreams of the first two subjects considered, I appeared in this subject's dreams in my proper person but the role in which the subject cast me in the dream scripts he authored was quite a different one, and the streams of feeling upon which these dreams drew were also very different. On the one hand, I am feeding him—in fact, spoon-feeding him—but, on the other hand, this nurturant role is greatly overdone and terribly unpleasant. The first dream directly connects, within itself, the too-rapidly-paced feeding with his annoyance at my too-insistent demand for dreams. His annoyance had undoubtedly been growing from session to session and must have been considerable by this, the fifth, round. It is noteworthy, in considering his annoyance at having to tell his dreams, that this subject is a nonreporter, rarely remembering his dreams at home.

The ambivalence of this subject's feelings toward me* in his dreams seems to be congruent with the ambivalent feelings he has toward his mother. The evidence for this comes from his response to the following question from me during our postsleep discussion of his feelings in these feeding dreams: "If you think of what it felt like when you were being fed [in the dream], can you think of any other time or circumstance when you might have a feeling like that kind of feeling?" His answer to this question and our further discussion follow:

S: When I go over to my mother's house every once in awhile . . . she waits on me hand and foot. Maybe likened to that feeling of uh [pause] you know, being fed. That's almost the same thing. Waits on me hand and foot.

E: And does she urge you to eat?

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* At the end, he expressed himself as "feeling good" that his participation in the study was over, in contrast to the first two subjects about whom I talked.

S: Oh yeah, my mother always tells me to eat. She always does. To this day.
E: To eat more than you want to?
S: Oh yes . . . sometimes.
E: How does she do it?
S: She keeps stuffing the plate.
E: And what happens if you say you don't want any more? Or do you say you don't want any more?
S: She says, "Oh, you're kidding."
E: If you say you don't want any more?
S: Yes. Or, I'm full, she says, "Waddya mean full? You only had a little bit." You know she just keeps uh . . . insisting and insisting and insisting. Like when I go to eat, first I have something at the beginning. Then she gives me meat and potatoes. After that I have celery . . . and . . . sometimes . . . first she gives me spaghetti sometimes . . . ravioli or something . . . that she makes. Then she gives me the meat and potatoes or whatever it is. . . . And then she gives me fruit and cake and milk and ice cream, and she doesn't give anything in small portions . . . everything in big large portions . . . and the cake, she gives big large portions of cake, and boy I'm full when I go out. . . . [laugh] Overeaten. Like she pours milk . . . alla' time . . . everytime she pours milk, I hafta' hold the glass. Right up to the top like this.
E: Brimful?
S: Hardly any room to . . . to uh . . . [pause] put another drop in.
E: Well, how do you feel when she does this?
S: Not bad. . . . Take it as a matter of course.
E: Does it make you feel annoyed?
S: Sometimes it does, yes.
E: How was it when you were little?
S: The same way.

He went on to say that he had just visited his mother the day before yesterday when he was given an extravagant meal as usual. And he lavished further praise on her cooking in a way which suggested that eating her food was a central feature in their relationship and a particular source of pleasure to him:

"I never tasted anybody cooked like that". . . . She enjoys seeing people eating her food. . . . 'Nettie's cooking,' they say. . . . One of my uncles said to her, 'No matter how sick I am I can come over here and eat everything you make.' "

The image he holds of his mother is composed of mixed elements as were his feelings toward me. On the one hand: "I find her a doting mother. . . . When I was very young, my mother was very good to us, money-wise. . . . I was, it was nice, we had a nice childhood, especially with the food. We had plenty of good food." On the other hand: "My mother's strict, . . . she was the boss. . . ." (This in contrast to his father who "had nothing to do with us, . . . I hardly remember him because he was so quiet.") "My mother was the one who took charge of the family. She did all the hitting and managed the money. . . . She doesn't get along with people. She doesn't like people actually. . . . I couldn't invite anybody in the house for supper or to come to stay."

I hope the case material just discussed, which in fact dealt with just one limited segment of the subject-experimenter relationship, has conveyed a sense of the opportunities available in our data for studying the "budding" transference. The case material also illustrates, dramatically, how much the laboratory study of dreaming must take account of the complexities of the experimenter-subject relationship. The impact of the relationship may have an overriding influence on dream content in a given sleep session, confounding the effects of the particular experimental variables chosen for study. Thus, in the case of the subject who had feeding dreams we find, counter to expectations, a crop of charged dreams in a neutral-film sleep session, rooted in the particular turn this subject's relation to the experimenter had taken, rather than in the presleep film experience.

In conclusion, I hope that what has been presented lends credence to the message I have tried to convey to the clinician who has been wary about the value of laboratory-based research on dream content: "Come on in, the water is great."

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DISCUSSION

CHARLES T. TART

MEN HAVE always been curious about what influences the content of their dreams. In very old literary works, one occasionally finds accounts of "experimentation" on this problem: some aristocrat, being curious about how stimuli affected his dreams would have his servants tickle his feet as he slept, hold perfume under his nose, and the like. With the rise of modern psychology over the last century, we find systematic experimentation on the effects of presleep and sleep stimulation: for example, in 1899 Monroe[12] carried out a study which involved his subjects holding cloves on their tongues for several minutes just prior to retiring; it was found that 3 of the 254 reported dreams were about having cloves on the tongue.

Emphasis on the degree to which external events influence dreams has varied widely. At the one extreme, the nature of the external event has been considered a virtually complete determinant of subsequent dream content. This is what Hadfield[7] in 1954 called the "pickled walnut theory of dreaming": all dreams are results of noxious presleep stimulation such as eating pickled walnuts might provide! At the other extreme, the nature of the external event has been held to be quite unimportant: the classical Freudian treatment of the effects of day residue (presleep stimuli of the day) emphasized the *internal* determinants of dream content, the unconscious and preconscious drives and defenses. The external stimuli are simply convenient ways in which these drives are expressed, and their particular character is of little importance; the most appropriate portions of day residue are selected by these internal determinants of dream content and "submerged" under the internal drives they carry.

All of these emphases seem to have been *part* of the complete picture. Clearly, dream content is affected by both the particular nature of presleep stimulation and by internal drives and mechanisms. The experimental literature on this is pri-

marily deficient in looking at a single variable at a time, when the process of affecting dream content is clearly a multivariate one.

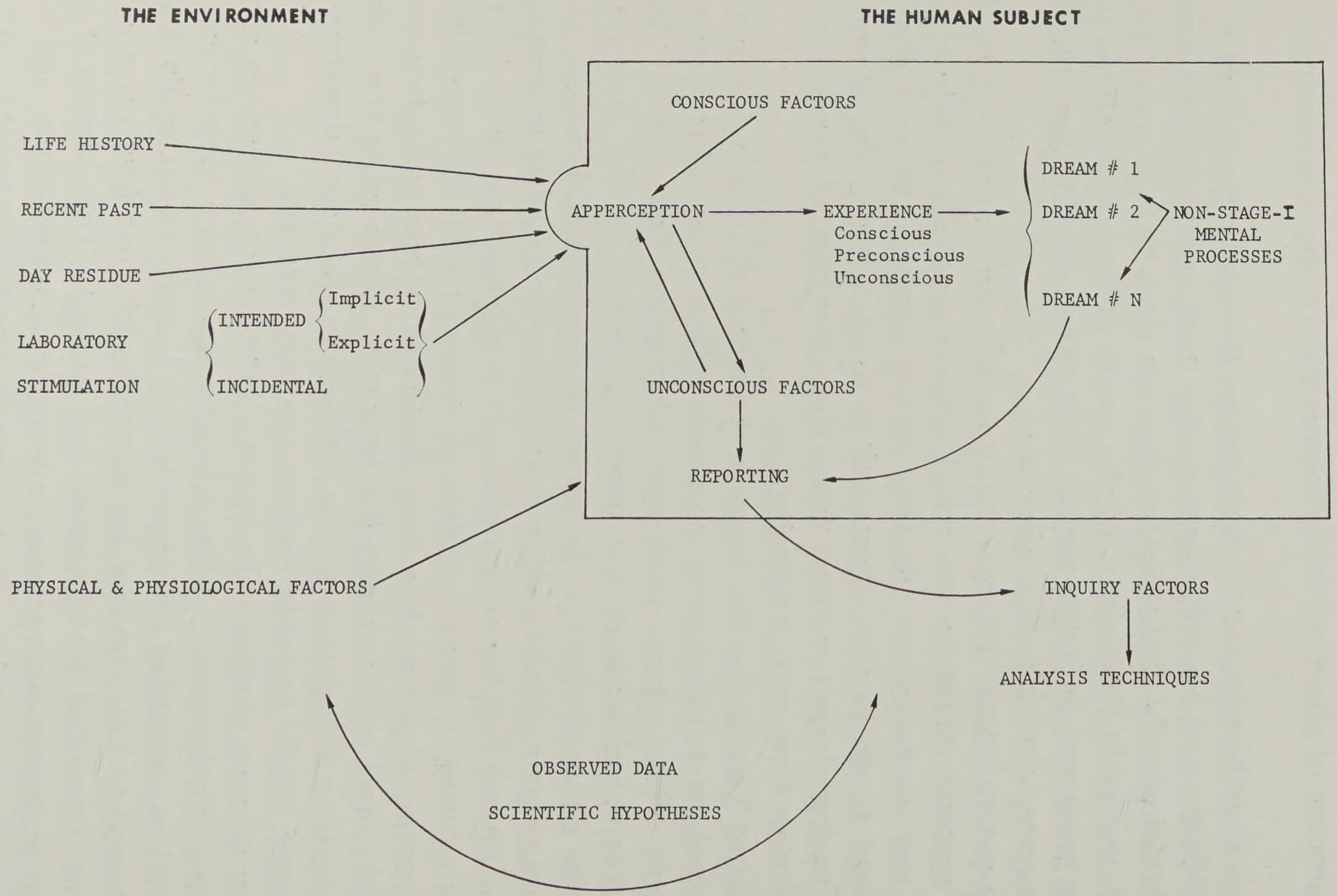
It is thus heartening to characterize the study carried out by Dr. Witkin and his colleagues as the most comprehensive and methodologically sophisticated one yet done in this area. Indeed, my main "criticism" of the study is that this volume is being prepared in 1968, not in 1970, when Dr. Witkin would have completed his data analyses.

As extensive as Witkin's study is, however, it does not take into account *all* the factors which empirical results to date suggest are important in affecting dream content. What I shall attempt to do in this discussion is to sketch out the factors influencing dream content from the viewpoint of general information flow and processing.

Figure 3 indicates the important sources of information and the various psychological processes which may affect dream content. The arrows represent information flow routes. *All* possible variables have not been represented on the diagram, for the sake of clarity. In terms of experimental design, almost any pair of information sources or psychological processes could be studied for relationship, in a classical single variable design, using a large number of subjects and the standard assumption that variation from the other sources and processes would cancel out to zero in the long run. Considering the high cost in time and money to run subjects in the sleep laboratory, however, single variable designs are very wasteful.

Let us now consider the various information sources in the external environment. The subject's *life history* may be considered as consisting of his actual life history (what really has happened to him) and/or his memories of what has happened to him (modified by his needs and values). This history is a set of memories—conscious, preconscious, unconscious, and of varying degrees of importance for affecting dream content. Another way of looking at the life history of the subject is that it is stored as his personality, that is, the sum total of constitu-

Fig. 3.


THE ENVIRONMENT
THE HUMAN SUBJECT
LIFE HISTORY
RECENT PAST
DAY RESIDUE
LABORATORY STIMULATION
INTENDED
Implicit
Explicit
INCIDENTAL
CONSCIOUS FACTORS
APPERCEPTION
EXPERIENCE
Conscious
Preconscious
Unconscious
DREAM # 1
DREAM # 2
DREAM # N
NON-STAGE-I MENTAL PROCESSES
UNCONSCIOUS FACTORS
REPORTING
PHYSICAL & PHYSIOLOGICAL FACTORS
INQUIRY FACTORS
ANALYSIS TECHNIQUES
OBSERVED DATA
SCIENTIFIC HYPOTHESES
INFLUENCING DREAM CONTENT

tional factors and learned styles of defense, coping, values, etcetera. About the effect of constitutional factors on dream content we know virtually nothing. As to learned personality factors, we have a fairly large number of studies correlating dream-content variables with personality variables in a long-term fashion (see, for example, Eiduson,[2] Hall,[8] Orlinsky,[15] Rychlak,[20]), but nothing correlating personality factors with reaction to presleep stimuli. Witkin's results will be of great value here. Not only has he been able to make predictions about the effects of presleep stimulation in his differentiated versus nondifferentiated subjects, but he has a wealth of psychological data on his subjects from which relationships may be found. The whole area of individual differences between the dream life of various subjects has been largely ignored in recent studies of dreaming in favor of the search for "basic" biological or psychological laws, and this may be very misleading: I have reported some data elsewhere[28] showing how this leads to a misleading picture of one of the physiological variables of sleep, basal skin resistance, and individual differences will surely be even more important for the *psychology* of dreaming.

For the next set of information sources in the environment, let us consider *recent past* and *day residue* together. While Freud coined a catching term in "day residue" to indicate the importance of events of the day in affecting subsequent dreams, the term tends to be taken too strongly: it is clear the events from the recent past are often incorporated into dream content, not just those from the past eighteen hours. Thus I feel it is important to know something about a fairly long period of the subject's activities prior to his coming to the laboratory, not just the previous day. How long this stretch of time should be is unclear, and I again suspect there will be important individual differences here. Use of the term "day residue" often forces on us the implicit assumption that the events of the day have a prepotency for affecting dream content, and that these events are almost completely processed in the course of a night's dreaming. But it may well be that some subjects take

a week of dreaming to "work out" daytime stimulation, while others do it in one or two nights. Then too, events of the previous week obviously vary in their psychological potency, and an affectively important event of two weeks ago may have more effect on the night's dreams than the current day's events.

Witkin's study does not deal directly with this day residue and recent past stimulation. Hopefully, psychologically potent events of the day would be mentioned by the subject in the postsleep inquiry period, but we cannot be sure of this. Particularly, psychologically potent events which may have strongly affected the subjects' dreams in an indirect way might not be mentioned by the subjects at all since they do not see any connection between the events and their dreams.* Indeed, Witkin reports that the previous week's film stimulus was often represented in dreams at a later session: situations which are defined as psychologically distinct from the rest of the subject's life may affect dream content over very long periods when they are reinstituted. I cannot criticize Witkin for not going to the arduous work of controlling for this factor but, clearly, future studies must elucidate the importance of daytime stimulation over the recent past. This must be done by rigidly controlling the stimulation the subjects are exposed to, as in Wood's study[34] of the effects of social isolation on dreaming, and/or by extensive interviewing of the subject when he reaches the sleep laboratory in order to ascertain what has happened to him during the day. Even when external stimulation is controlled, interview data on how the subjects perceive and respond to the stimulation should still be obtained (as will be discussed more fully below), for the assumption that exposing subjects to uniform stimuli has uniform effects on them is clearly fallacious.

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* All of the clinical studies that have given us what knowledge we do have of the effects of day residue on dream content have used the design of the subjects reporting about the previous day *after* their dreams: this is clearly open to much more bias and distortion than *prior* knowledge of the days' events, rather than retrospective knowledge.

Our next set of information sources in the environment is the laboratory situation itself. Here we should consider *intended* sources of stimulation and *unintended* sources.

By "intended," I mean that the investigator desires to influence the subject in particular ways. Further, the investigator may not be conscious of all of his intentions in this respect. The formal independent variable in Witkin's study, what is explicitly intended to influence the subjects' dreams, is the variation of the type of film shown to the subjects before they go to sleep. However, all laboratory experimentation has what Martin Orne has called "demand characteristics," [16,17] (i.e. as investigators we demand certain kinds of behavior from our subjects). We generally make a number of demands, some of which may be explicit, some implicit, and we may have various degrees of awareness of these demands. As Orne has shown in his work, the implicit demands that the investigator may not be aware he is making may be more important determinants of the subjects' responses than the formal independent variable. Rosenthal[19] has shown similar effects in his studies of experimenter bias: it is quite possible to subtly influence subjects to behave according to our prior expectations without being aware that we are doing so. For example, in reviewing the earlier literature on hypnotic dreams,[25] it was clear that the early psychoanalytic investigators of hypnotic dreams had (not too subtly) demanded that their subjects dream in accordance with Freudian principles and then felt they had proven the validity of Freud's dream theories, when in fact they had simply shown that they could *influence* the content of their subjects' dreams.

In Witkin's study, there is a very clear demand on the subjects: "Dream about this film!" Thus, the situation is very different from "ordinary life," in which a subject might see a film before going to bed but not be under a demand to produce a dream related to the film for the sake of a scientific investigator. Another source of demands might be the inquiry conducted after each dream report, for by the emphasis of his

questions an investigator could convey a series of implicit demands to his subjects as to what was "important" or "scientifically meaningful." Witkin is very aware of this, much more so than earlier investigators, and he is to be complimented for doing many of his analyses on the "dream texts," the reported dream plus nonleading questions. However, the fact that the investigator could go on and ask the subjects other questions about their dreams after asking the nonleading questions could constitute a strong source of demands, the effect of which cannot be evaluated from his discussion.

Further, Witkin's findings suggest that there may be some strong demands communicated to the subjects that they are not only to dream *about* the presleep film but that they are to dream about it *indirectly*. My reading of Witkin's contribution to this volume suggests that the dominant mode of incorporation of the presleep film into the reported dream is indirect, that is, the events of the films are represented in transformed, "disguised," or other indirect ways; a direct representation of the events of the films hardly ever occurs. Incorporation is generally inferred by the investigator, although the degree of transformation is not great and the inference is fairly straightforward, even without associations to the dreams by the subject. This is in sharp contrast to my own work [22–24, 27, 29] and to Stoyva's work [21] on influencing dream content by means of posthypnotic suggestion. Here the subjects are hypnotized before going to sleep, told they will dream about a described series of events, dehypnotized, and allowed to go to sleep. The stage I dream reports here fall into two categories: incorporation is direct, with virtually no changes; or there is no evidence of any incorporation. Total lack of incorporation in highly transformed form cannot be claimed since associations were not obtained, but the mildly transformed incorporations of Witkin's study (and many earlier studies, reviewed in Tart [26]), were not found. The demand in the post-hypnotic suggestion studies is quite clear: dream directly. Although there are other important differences between my work and Witkin's, this finding does raise the question as to whether there were demands

in Witkin's study for the subjects to dream in indirect form, or whether this is a difference due to the nature of posthypnotic suggestion versus viewing a film in the waking state. Dr. Witkin and I hope to run a few pilot subjects in a design using his films but with posthypnotic suggestion to investigate this difference, but I feel this difference in findings at this point helps to emphasize how vitally important it is for an investigator to describe clearly the demands he makes on his subjects; if he does not, it may be useless to try to compare results from one laboratory to another.

Now let us consider the *un*intended demands created by virtue of the study taking place in a laboratory. Orne [17] has described the special psychological situation created by virtue of "being studied in a scientific laboratory" very well, and I shall not take the time to elaborate his findings here. As Witkin has reported, the physical setting of the laboratory and the experimenter-subject relationship can influence the dreams of the subjects in ways not planned by the investigator. I do not feel, however, that Witkin should emphasize that the laboratory study is "unnatural" compared to the situation from which most of our knowledge of dreams has come, namely, the therapeutic situation. Let us compare the demands placed on subjects under four conditions: (1) ordinary dreams at home, (2) dreams recorded at home but given to an investigator who is studying dreams, (3) dreams collected in Witkin's laboratory, and (4) dreams collected in therapy.

Under the "natural" conditions of dreaming at home, most people attach no special value to their dreams, and seldom do they tell them to anyone else. This applies especially to ordinary, prosaic dreams. People generally make no attempt to recall and remember them.

When a subject is asked to write down his dreams at home and give them to an investigator, several new elements have been added that make the situation "unnatural." The subject has now been told that dreams are valuable and that he must make a particular effort to recall them and remember them in a relatively permanent form by virtue of writing them down.

Dreams typically are collected from many subjects this way, with minimal contact with the investigator; so generally there is not much of an experimenter-subject relationship to affect the dreams. Indeed, the subject is generally anonymous to the investigator and knows this, so he need not be particularly concerned with "revealing himself."

The valuing of dreams and the special effort to recall them are also part of the laboratory situation. In addition, the effect of the presleep stimulation is added (i.e. the demand to dream about the film). There is a much more intense relationship with the investigator, and the subject is not at all anonymous, so he may be much more concerned with revealing himself. However, the laboratory situation is defined as one in which the interest is primarily on the nature of dreams. While the personality and inner needs of the subject are factors which must be considered in understanding the dreams, they are not the primary focus. That is, the subject realizes he is revealing himself to a greater or lesser extent, but this revelation is in the interest of the impersonal scientific goal of understanding dreams.

The therapeutic situation has all of the factors of the laboratory situation, including the dreams that the subject's (rather, the patient's) dreams will be affected by daytime events: the therapist by asking for dreams and using them in the therapy creates an implicit demand that the dreams express the patient's problems and defenses. However, a new factor has been added: the focus is not on the dreams but on the patient's inner life: dreams are an accessory to understanding the patient, not the other way around as in the laboratory. Further, this understanding is not used for impersonal scientific goals but to *change* the patient, to enable the therapist to attack the patient's defenses and alter his personality; were this not threatening, we would not have the phenomenon of resistance!

I shall argue that the therapeutic situation is thus far more "unnatural" than the laboratory situation, and, as a result, may produce all sorts of effects that are functions of therapy, not of the nature of dreaming. By comparison, hypnosis is fre-

quently written about as a powerful, threatening procedure that produces all sorts of powerful affective reactions. (See Gill and Brenman [6] for examples.) Yet in laboratory investigations of hypnosis, we almost never see these sorts of reactions—even though many of our volunteer subjects are as emotionally unstable as the patients seen in clinical settings.[10] Why? As Orne [18] has pointed out, in the laboratory the subject enters into a time-delimited contract to participate in a situation where the focus is on the nature of hypnosis rather than on the subject's inner self, as in the dream laboratory. In the use of hypnosis in therapy, on the other hand, the focus is on the subject's inner self and the knowledge obtained via hypnosis will be used to *change* the patient; thus it is understandable that powerful affective reactions occur to the use of hypnosis in the therapeutic situation. To attribute these reactions to the nature of hypnosis, as many have done, is very misleading. Similarly, the collection and analysis of dreams in the therapeutic situation *may* be much more "unnatural" and misleading than their collection in the laboratory. The threatening use of dreams in the therapy may have created all sorts of special psychological mechanisms which should not be attributed to the "natural" dream itself.

I am not arguing that it is worthless to collect dreams in the therapeutic situation and theorize about them, but we should be aware of the special limitations this puts on our analyses. Indeed, it is only by comparison of the knowledge of dreams obtained in the laboratory situation with those obtained from the therapy situation that we can begin to understand just what is special to the latter situation. Witkin's study is especially valuable in combining the objectivity of the laboratory with an awareness of the dream theories derived from clinical practice, in such a form that many of the theories derived from the latter situation may be tested in the laboratory.

Finally, under external information sources, I have included currently unknown physical and physiological factors which may affect the dream content obtained. This includes such things as atmospheric ion concentration,[4, 5, 11] which will vary

radically in any large city and has been shown to have important behavioral effects in general, and other specific factors which have been shown to affect sleep such as barometric pressure [32]—even though we have no specific evidence that these would affect the manner in which presleep stimuli are incorporated into dreams at present. We should also note the excellent experimental work of the Maimonides group suggesting that telepathic stimuli from an experimenter may affect dream content.[31]

Turning to the subject himself, we must consider that information reaching any subject (the presleep stimulation) is not perceived so much as apperceived. I have indicated in Figure 3 that apperception is influenced by both conscious and unconscious factors. Under conscious factors, we may include values and interests as well as learned patterns of scanning the environment. Thus, for example, if Witkin had used medical students as subjects, his film depicting the vacuum-extraction birth technique would have elicited genuine technical interest in the vacuum-extraction technique. Under unconscious factors, you may plug in your theoretical system whether it be Freudian, Jungian, Adlerian, existentialist, or what have you! The important thing here is that simply exposing subjects to the same set of stimuli does not mean that they have the same presleep *experience* because of the apperceptive factor; this naive assumption ruins many a psychological study. Witkin's study is very good in attempting to assess the appercepted impact of the films on the subjects through the use of an adjective checklist and physiological recordings, and, when his data analyses are complete, these will be extremely illuminating findings.

Given the apperceptive working over of the various external influences, we finally have an *experience* which affects the dreams of the night. The experience may be subdivided into conscious (readily verbalizable), preconscious (verbalizable with difficulty), and unconscious (not verbalizable without extensive free association, working through of resistances, and the like) categories. That is, the apperceived information input

to the subject may be considered as resulting in some conscious experience, some preconscious information storage, and some unconscious information storage. Use your favorite theoretical system to decide how much importance to attribute to each of these and to fill in the nature of each of these psychological functions.

It is these various categories of experience which now affect the dreams of the night. We should note that there is evidence of variation in psychological function with the progression of stage I dreams through the night,[13,14,30] and Witkin's data can be analyzed for such effects (bearing in mind possible "contamination" effects resulting from the questions asked by the investigator in earlier dream reports serving as suggestions and demands affecting the later ones). Further, some of the various categories of experience are expressed in non-stage-I mentation, others in hypnagogic mentation. While all these other modes of expression cannot be studied in one experiment, we may note that other studies from Witkin's laboratory have dealt with these.[1,33]

With all this information-processing having gone on so far, with so many psychological processes potentially affecting the process, we still are not at the dream that we study; it is the *reported* dream that we study, and so we must look at the reporting process. Therapeutic work has long suggested that the dream is subject to all sorts of distortion, repression, and elaboration in the reporting process, Freud's secondary elaboration.[3] Witkin and many other modern dream investigators implicitly assume that the immediate reports obtained in the laboratory from stage-I awakenings will *lessen* secondary elaboration, even though they will not eliminate it completely. Another way of expressing this assumption is that it takes a reasonable amount of time for the secondary distortion processes to operate, so a quick report will lessen their effectiveness. This assumption is partially testable with Witkin's design, where the dream report the following morning can be compared with the immediate report. Combined with the extensive personality data on each subject, some important find-

ings on the nature of secondary distortion should emerge here.

While it is well to be aware of these "dynamic" factors affecting dream report, we should also look for more purely cognitive ones as well. Conscious values affect what we remember of our waking experience and probably of our dream experience as well; yet, they have been largely ignored in studies of dream recall. Too, there is a memory factor; some dreams do not seem to be stored in memory soon enough and fade away before our eyes. As this happens to pleasurable dreams as well as unpleasant dreams, dynamic defenses do not seem to comprise an adequate explanation by themselves.

We have finally reached the "raw" dream report. The way in which inquiry is made to enrich the dream report is another source of variability here, and Witkin's procedures are very good in insisting on nonleading questions for the first part of the inquiry. The possible effects of the rest of the inquiry constituting implicit demands that may affect the subsequent dreams have been discussed earlier.

At last we have reached the "facts": the reported dream and a series of questions and associations which enrich it. However, we are seldom content to stop at this point and let the facts speak for themselves; rather, we analyze the reported dreams to understand their "deeper" meaning, and it is here that we have the opportunity to reap the greatest rewards in understanding and to commit the worst blunders of interpretation.

We all make the assumption in our clinical practice and research that our patients and our subjects will project their needs and fears into ambiguous material; is it not strange that we never apply this assumption to ourselves when we "interpret" the ambiguous material of the dream?

Expert opinion about the meaning of a dream is a rich source of hypotheses, but seldom more. For any sort of scientifically acceptable "proof" of a relation between presleep stimulation and reported dream content, we must first show that our system of analysis has inter-rater reliability. The traditional analytic approach has never met this criterion, for it is well known that if you give five analysts a dream report plus associations

you will generally get five different interpretations. Once you have a reliable analysis system (Hall and Van de Castle's work [9] is an excellent one), you can check the validity of your interpretations (i.e. show that they usefully order the data and make testable predictions). We are still far from a system that would be both reliable and would successfully encode the dream information believed "significant" by clinicians.

Witkin's analytical technique is about as good as can be achieved; he is quite aware of the problems of reliability and, using various degrees of information (dream text alone supplemented with varying degrees of information from associations and biography) and various levels of analysis (from the completely objective to the purely expert opinion), he can reap the benefits of objectivity in many areas while taking years of clinical experience into account to generate new hypotheses about dream functioning.

Again, my strongest criticism is not of Witkin but of the year; we shall all look forward to seeing more of his findings.

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Chapter 14

Dreams as Compared to Other Forms of Fantasy

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AS I INTERPRETED the topic assigned to me, it is concerned with the question of the uniqueness of the dream. This gives me the opportunity to go beyond what you might have expected from this chapter—a review of studies correlating dream content and projective test responses. Although I treat the similarity and difference of the dream to other forms of fantasy a little later, I would like initially to discuss this as a second strategy for investigating the function of the dream. What, then was the first and why do we need a second?

The method of subtraction was the first research approach to answering the question of dream function. This involved removing the dreaming phase from sleep and watching for what effects followed its loss. Grossly, the results from employing the dream-deprivation or subtraction strategy have been that we have learned a good deal about the REM state but not much about dreaming. We now know that when REM time is reduced there is an increasing pressure built up for its restoration and that this is expressed by way of an increasing number of REM attempts, a shortened latency to the first REM period and, when permitted, an increased total REM percent above base rate for a period before a return to base levels. All of this has been interpreted as evidence that the REM state serves some repetitive need. Evidence of there being any similar need quality to "the dream" is not nearly so clear.

There are still those who state with conviction that the psychological experience of the dream is an accidental, unneces-

sary accompaniment of REM time resulting from the heightened neural activity characteristic of the REM period. Support for this position is drawn from Jouvet's [11] work which showed that REM recovery following deprivation occurs in decorticate cats and also in those who have had the entire brain above the pons removed. Thus, since the need for REM recovery asserts itself in situations where there is no possibility of a psychological experience accompanying it, the need must be for the state and not for the content. This evidence is not conclusive though, since it only tells us that REM recovery is independent of the loss of dream experience. It does not explore whether there are any effects particular to the absence of the dream in the presence of REM time. Nor does it take into account that cats are not men, and the REM state and the dream may have any one of several kinds of relations which may be different in various animals.

Four hypotheses will be explored in this chapter regarding the above-mentioned observations:

1. The REM state may be necessary and the dream a correlated but unnecessary epiphenomenon.
2. They may both be necessary parts of the same process which serves both neurophysiological and psychological functions.
3. They may both serve needed functions which are independent of each other. REM time may represent one convenient set of conditions for the dream to take place. However, there may be other conditions, and if the REM state is removed or reduced, the dream may become dissociated from it and appear elsewhere.
4. Lastly, perhaps one major function of REM sleep is to allow dreaming to take place.

If the first hypothesized relationship were true—that dreaming is a by-product of the REM state, no dream should occur in its absence. This we know to be false at the outset. Although many people have reported the presence of some dream reports from NREM awakenings, the best and most telling

evidence comes from Zimmerman's recent work on light and deep sleepers. Zimmerman [15] set out to explore the differences between those who had high and low auditory awakening thresholds in all sleep stages. He found that while deep sleepers with high awakening thresholds report dreaming after 21 percent of their NREM awakenings, light sleepers with low auditory awakening thresholds report dreaming following 71 percent of their NREM awakings. He concludes that dreaming occurs as a result of a state of high cerebral arousal in the absence of reality contact regardless of the stage of sleep at the time. It seems that there are those persons for whom this state only occurs in REM periods, so that their dreaming is mostly localized to those times. But there are others for whom this is not the case. Since we tend to select our sleep subjects for being good, deep sleepers, we may have been building our knowledge on the basis of a biased sample which generally behaves so as to confirm what is now an untenable hypothesis.

The evidence from Zimmerman's study serves both to refute the first hypothesis—the dream is an accidental by-product of the REM state—and to cast doubt on the second hypothesis as well—that REM and the dream are both necessary parts of one and the same process. His data are best subsumed under the third hypothesis: that the REM period and the dream are two independent conditions which usually occur at the same time under natural conditions but which can become dissociated from each other in time. It seems that the REM state normally provides some conditions conducive to dreaming, but these may also be present at other times. NREM dreaming occurs under normal conditions in some people who normally have particularly high levels of cerebral arousal. It can also occur under experimental conditions when the dream-state requirements are met outside of REM time. This was essentially the explanation I offered for the striking similarity between the content of the Ditran-induced, daytime hallucinations and the normal nighttime dreams of the same subjects.[2] This drug produces high levels of cerebral arousal in the presence of low levels of sensory control. These seem to be at least

two of the necessary conditions for the appearance of hallucinations with some connected theme which are not reality tested at the time—events which we typically recognize as a dream.

There is other evidence that all the REM-state components do not always behave as a total gestalt. Fisher [7] has reported that under the conditions of REM deprivation the penile erection cycle begins to occur with its usual ninety-minute periodicity during periods of NREM sleep or during wakefulness if that's what occurs at the time instead of REM. Fiss, Klein, and Bokert [8] have reported that TAT stories told during REM awakenings are more dream-like than the TAT stories told during NREM awakenings or those told during wakefulness. They interpret this as being due to the persistence of the mental state of the dream in the absence of the REM state. Dr. Lawrence Monroe and I [4] have also reported the presence in one group of subjects, of a high proportion of dream reports from the REM-onset awakenings made during a REM-deprivation study. On the following nights there was no REM rebound effect for these subjects. One likely explanation of these findings might be that some of these subjects may have been naturally light sleepers who therefore would have had a high proportion of dream reports during awakenings made from any sleep stage. Some others in the sample may have been temporarily converted into light sleepers due to their adaptation to the REM-deprivation conditions as they learned to anticipate that frequent awakenings would be made. Some subjects, when REM-deprived, of course, react in quite the opposite way, that is, to deepen the sleep they get between the awakenings. These are the subjects who cannot be awakened by being called by voice but must be shaken and wrestled awake. Subjects who react in this way are not apt to have much fantasy to report on these awakenings; this is followed by the typical pattern of REM compensation on the recovery nights.

One last hypothesis concerning the relation of dream to REM time should be touched upon before turning to its psychology. The fourth hypothesis is that one important function of REM time is to allow dreaming to occur. This implies that the

amount of REM time needed is proportional to the amount of dreaming which has taken place. One possible deduction from this hypothesis would be that there might be less REM compensation needed to make up for deprivation loss in those subjects who have dream experience despite the absence of REM time. Several studies need to be done to provide data on this point which are not now available. One obvious study which should be done is an investigation to discover if light sleepers who characteristically do more dreaming throughout the whole night have less REM compensation following deprivation than deep sleepers. The light sleepers would have more REM time loss proportionate to the amount of their dream loss, but the deep sleepers would lose equally both REM time and dream experience. Thus the deep sleepers might have more need to make up REM time.

Some evidence is already available from the studies which show that there are distinctive, patterned, individual differences of response to the REM-deprivation condition. We know that some subjects build up REM pressure quickly; others do not. Those who have a good deal of dream-fantasy material to report at the REM onset awakenings do not show as much compensation after three nights of deprivation as those who had little or none. Finally, in a new study,[3] Dr. Monroe and I found that on those nights when a secondary process task was required of the subjects during the deprivation awakenings, more REM compensation followed than on nights when primary process material was elicited. When subjects were given the digits forward and backward subtest of the Wechsler Adult Intelligence Scale (WAIS) during their experimental awakenings, they had more REM time proportionately during their next uninterrupted sleep than when they were asked for a standard "what was going through your mind" report. This difference is both large and independent of the order in which these two types of awakening conditions were administered. Clearly the implication is that not only can dreaming experience become dissociated from REM time when that is in short supply, just as does the penile erection cycle, but also that when

it does, it has an effect of reducing the subsequent amount of REM compensation time. Although this study is far from conclusive evidence on the validity of hypothesis four, it does keep it alive and open. More important for our present purposes is the increased evidence from this study of dreaming having an independent existence outside of REM time. It seems that the strategy of investigating the function of dreaming by removing REM time cannot be carried out equally for all people. This design has helped to clarify the effects of lost REM time but, since no one has yet found a way of insuring that all dream experience can be experimentally eliminated from sleep, other techniques for investigating its function need to be designed.

Some studies have attempted to illuminate its function by controlling presleep experience through introducing some standard presleep condition [9,14] which might be expected to effect the dream experience. Such studies are those Dr. Witkin has reported. Another method is the one referred to at the beginning of this chapter as the strategy—that of comparison and contrast to other kinds of mental life. Now that dreaming mentation can be sampled immediately and at will, it can be compared both to the waking life that preceded it and that which follows it. This makes it possible to look at its functional relation to ongoing mental life in terms of both "where did it come from" and "where is it going."

Most current dream theory can be clustered into one of two positions: the Freudian and the Adlerian. The Freudian view sees the dream as providing disguised gratification of instinctual wishes which are denied awareness during wakefulness. In the Adlerian view, dreams are seen to be motivated by the need for a solution to current emotional problems from our waking life and conscious experience. These two imply opposite types of relationships between dreaming and the conscious waking behavior which precedes it: the first implies a *compensatory*, the second a *continuity* relationship. The prediction on the basis of the compensatory or Freudian view would be that the order of relationships between the fully conscious, ego-controlled, wakeful mentation and the preconscious, less con-

trolled projective test behavior be low and positive, and the correlations between consciousness and dreaming be moderately negative. On the basis of the continuity viewpoint of Adler, French, Hall, Fromm and others, the prediction would be that all of these relationships be moderately positive. Further, if the continuity hypothesis is reasonable, it would seem likely that the correlation of the waking mentation that follows the dream might be used as an indication of how productive the night's work has been. In other words, a study of waking-dream-waking sequences could be set up as a learning paradigm.

Now what is the evidence on the similarity of dreaming content to that expressed in other forms of mental life? The evidence is quite mixed. Although there are many studies aimed at providing answers to this question, there are none that are comparable in terms of subjects, definition of variables, methods or measures. Subjects vary from Gordon's [10] group of 29 psychiatric patients to Strangman's [13] 343 Nigerian school boys. Definitions of what constitutes the content to be compared varies from specific drives (to be measured for their strength and mode of expression in wakeful conscious life and dreams) to something as general as a comparison of the self-concept. The specific drives investigated have varied from immediate physiological needs such as hunger and thirst,[5] to general levels of sex and aggression.[1] Major conflict areas such as dependency-independence, affection-hostility,[12] need-presses,[10] and the level of achievement motivation in whole subcultural groups [13] have also been compared in dream and other states. The data samples, too, have varied from large numbers of laboratory-monitored dreams to a sample of only two recalled dreams. The samples of waking behavior to be correlated to these have run from the number of hours of food and liquid deprivation through projective test fantasy and self-report test behaviors like the MMPI, to the motivational structure of whole groups as inferred from national public opinion poll responses. No wonder the findings are mixed and the conclusions diverse. On the basis of these studies, we have all combinations of relationship supported. Most often dreams have

been found to correlate positively with waking behavior but negatively or not at all with projective test data.

Perhaps the most sophisticated of studies of this kind is the recent Ph.D. dissertation by Ben-Horin [1] done in Rechtschaffen's laboratory at Chicago. The aim was to investigate the relationships between impulse expressiveness in waking behavior, dream content, and projective test fantasy in twenty-four subjects, twelve of whom were chosen as representing high impulse expressers on the Welsh Scale and twelve of whom were low or nonexpressers of drives. Need-expression during waking behavior was largely measured through these subjects' own MMPI responses, although there were also ratings made of the waking behavior by judges. The waking fantasy was assessed through the subjects' TAT stories, and their dreaming through the collection of dream reports during two nights of EEG-monitored sleep. The study is complex, but for present purposes the main finding was consistent and substantial evidence that the expressers of impulses in waking life also express more hostility and sexuality in dreams as compared to nonexpressers. This finding clearly supports the continuity position. The author does not feel that these results can be taken as evidence to refute the complementary position though, since the immediate state of drive satiation prior to sleep was not measured. The major measure of waking-drive expressiveness was a personality test. This type of measure tends to tap the more chronic level of drive states. It is concluded that the precise level of drive gratification prior to sleep would need to be assayed to test the complementary hypothesis. Ben-Horin [1] found no consistent relationship between the expression of impulses in wakefulness and TAT fantasy nor between TAT and dreams. This lack of correlation between fantasy as expressed on a projective test and dream fantasy has also been reported by Eagle [6] who computed the amount of primary process thinking expressed in the TAT, Rorschach, and dreams reports of a group of male actors. She found the correlations to be uniformly low and nonsignificant. It seems that the projectives cannot be used to explore the content and function

of dreaming mentation unless the necessary state conditions of high cerebral arousal and low sensory control are also present. These state characteristics are not usually present during wakefulness, except momentarily, unless we are in a state of sensory deprivation, ill with a high fever, or under the influence of a drug which blocks sensory transmission.

Let me now try to pull together what we know from research evidence and what we intuit from our experience in working with the dreams of others as well as from introspections on our own dreaming. Mental activity in general represents a high order of development. It allows for imaginative trial and error rather than actual, for reason to be interposed before action, for forecasting, planning, rehearsing future behavior as well as retrospecting and reviewing our past. This activity appears to be continuous throughout the twenty-four-hour day cycle, although the language by which it is carried forth differs in various states. The content at any one time has both figure and ground characteristics. During wakefulness, there is more control due to the constant input of sensory data which directs and holds our attention and determines what is the predominant theme or image in focus. A number of themes are always competing for the spotlight; some with more energy of urgency than others and some which will have longer claims on the focus position before they subside into background or get filed away in memory. The content at any one time will vary in the extent to which it is directly perceptual in character or abstract, and also whether the percepts are the response to immediate sensory input or represent old traces, memories; or new combinations or imaginative constructions. Content also varies in "how predetermined is the goal or purposeful the pursuit" versus "how freewheeling." While we sleep, the highest powers of attention and control are not operating so the mental content is not purposefully selected. Although it is largely visual, the percepts are not based on input stimulation because, as Dr. Rechtschaffen once forcefully reminded us, our eyes are closed. So we continue our mental activity using what we have available in the way of the internally generated percepts

based on old traces and new combinations. Since the material is not consciously selected, it is likely to be determined by the chronically persistent background material not attended to during the day or by foreground themes high enough in energy not to have reached satiation. This will account for the correlations being positive between waking material and dream content, for the prosaic character of much of it, and also for the fact that it is not always recognized as familiar because the language is that of imagery from memory and new creations. This is another language, the visual, to carry on with our characteristically human occupation of thinking forward and thinking backward. This imagery language takes over whenever there is a steady state without the input changes that demand our attention.

Dream-content analysis can then provide us with additional useful knowledge of what we are thinking and feeling, reviewing and rehearsing, if we only had it available to us in recall. I believe it can be if we are not trained out of its recall. This material should not be viewed as forbidden and dangerous, but seen as useful data for increased self-understanding. In my experience, children can easily be trained in its understanding and use if they are not told, "go back to sleep, it's only a dream" when they awaken with this experience available but are told instead, "this is a story you were telling yourself while you were asleep—I wonder why you were telling this one—what is it all about?" Such early training could give us a generation with more natural access to their internal life so that the hallucinogens which provide the state conditions of dreaming during wakefulness might have a greatly reduced appeal. We could then "turn on" nightly—and for nothing. A generation growing up with this kind of easy access to the inner life might well live in a more fully integrated manner, truly making use of the function of dreaming. This function, I feel, is to allow for fuller exploration of ongoing concerns than we have time and space for during our busy waking lives. Such integration between waking and sleep mentation could make our adaptations to current life less disjointed since they would be based on

fuller data and therefore more representative of the true reality of both our inner and outer selves.

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DISCUSSION

AARON T. BECK

IT IS A PLEASURE to be able to discuss such a scholarly presentation as that presented by Dr. Cartwright. The first part of the chapter, which deals with the relationship between REM sleep and dreams, is an excellent critical review of the theories and studies of the associations between these two phenomena. It is clear from Dr. Cartwright's review that the relationship between REM states and dreams is highly complex and will require a great deal of more systematic inquiry before any solid conclusions can be reached.

Her review should also have a sobering effect on researchers who are prone to grab hold of preliminary physiological correlations to advance particular psychological or psychiatric theories. For instance, the recent findings regarding REM deprivation and dreams certainly do not provide unequivocal support for the widely heralded notion, derived from the earlier studies of REM deprivation, of "a need to dream."

Moreover, the exploitation of the finding of penile erections during REM sleep as proof of Freud's theory of the sexual role of dreams is now brought into question by the finding that, under conditions of REM deprivation, the dreaming experience can become dissociated from the penile erection cycle.

Dr. Cartwright makes an interesting division of contemporary dream theories into the "compensatory" group and the "continuity" group. I think, however, that this simple division cuts across several different variables, and I would like to reorganize the assumptions underlining contemporary dream theories.

The first division is the *continuity-discontinuity* proposition. This proposition includes two opposite assumptions: (1) that dreams are discontinuous with, or are reciprocal to, waking behavior and (2) that dreams are continuous with waking ideation and behavior.

I would label the second major division the *functional* propo-

sition. This consists of at least three different possibilities: (1) dreams serve the function of wish fulfillment (according to the Freudian view); (2) dreams serve the function of solving, or attempting to solve, current emotional problems from the waking life (the position of Adler, French, Hall, and Fromm); and (3) dreams do not serve any function but are simply phenomena that occur during sleep.

I think that this division of the assumptions underlying the current theories may help to clarify the multiple theoretical differences. It is conceivable, for instance, that dreams could be continuous with waking ideation and at the same time serve either the function of wish fulfillment, the function of problem-solving, or no function at all. Alternatively, dreams could be discontinuous with waking ideation and either serve the function of wish fulfillment or not serve any function at all.

In relationship to the continuity-discontinuity proposition, we have done some work at the University of Pennsylvania that supports the continuity hypothesis.[1] We have compared the manifest content of dreams to various forms of waking behavior and waking ideation. One of the most striking relationships between waking behavior and the manifest content of dreams was a study which showed that the dreams of convicted sex offenders had a significantly higher content of themes of unlawful sexual activity than did the comparable dreams of other kinds of convicts.

In another study, for instance, we found that patients who scored high on a depression inventory—that is, who acknowledged that they were pessimistic, regarded themselves as inferior, and expressed notions of failure, thwarting, and defeat—showed a much higher proportion of dreams in which they were "losers" than did a matched group of nondepressed psychiatric patients.

In our recent research, we have attempted to determine whether there was any continuity of theme between daydreams and nightdreams. The themes of daydreams and nightdreams of each patient were scored and then compared. In eight out

of ten patients, the themes of the daydreams appeared in most or all of the nightdreams. If this finding holds for a larger series of patients, it will certainly provide strong support for the continuity hypothesis.

To conclude my discussion of the continuity hypothesis, I would propose a modification of Dr. Cartwright's schema as follows: verbal cognitions—pictorial daydreams—NREM cognitions—REM pictorial dreams. I would be inclined to omit the responses to projective tests because of the highly conflicting results reported in research with these instruments.

In terms of the *function* of dreams, we originally started our research many years ago with the Freudian assumption that dreams served a kind of wish fulfillment. However, in the course of our research, we were unable to substantiate the wish-fulfillment hypothesis and finally abandoned the motivational model for a cognitive model of dreams.[1] Our current position is that certain cognitive patterns are activated in the course of an individual's waking experiences. These cognitive patterns are peculiar to the individual, and in the case of psychiatric patients represent idiosyncratic ways of perceiving themselves and the outside world. These cognitive patterns (or schemata) exert a varying degree of pull on the individual's interpretation of reality. When the patient is asleep and external stimuli are absent, the schemata exert a maximum influence on the thinking, as manifested in the thematic content of the dream.

When the patients are divided according to nosological categories, we find certain distinctive patterns in each of these groups—both in waking and in sleeping ideation. The ideation of the depressed group revolves around themes of deprivation, thwarting, inferiority, and escape; that of the anxious patients centers on a personal threat; that of the hostile paranoid is saturated with themes of unjustifiable abuse and counterattack by the patient; that of the sociopath is involved with socially prohibited activities.

This cognitive model of dreams not only bridges the gap

between sleeping mentation and waking mentation but remains clear of the teleological overtones contained in the theory that dreams serve as a guardian of sleep or solve problems.

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Chapter 15

Manifest Dream Content in Psychopathologic States

MILTON KRAMER

THE MANIFEST dream in psychopathologic states has been a neglected area of study. Although Freud [35] did recognize that the "facade may show us directly the core of the dream," his almost exclusive emphasis on the latent dream thoughts served to hinder the study of the manifest dream content. But, as Jones [54] has pointed out, a psychology of dreams must rest on a study of the elements of which it is composed, namely, the manifest dream images.

There are a number of reasons for studying the manifest dream in psychopathologic states. First, the dream is of interest as an expression of the patient's inner life and, as Alexander [1,2] has noted, a particularly impressive expression. Second, the dream, as a highly condensed and highly personal projective product of the patient, can be utilized to gain an understanding of him without reference to the interpretive endeavor.[62,67] Last, the study of dreams in mental patients may be a guide to discovering the secrets of psychosis as Hughlings Jackson [53] suggested in his observation, "Find out about dreams and you will find out about insanity."

For those interested in dream content in psychopathologic conditions, the methodological breakthrough provided by the discoveries of Azerinsky and Kleitman,[5,6] which allows the identification of the time of dreaming, has accomplished three things: (1) It has generally renewed interest in the area of dreams; this volume is one example of that interest. (2) It has made us aware of, and led us to puzzle about, the large amount of dreaming which occurs each night and the paucity

which is reported the next day. (3) Though the REM technique allows dream collection closer to the time of dreaming, it has underscored again that we continue to deal with the *dream report* rather than the *dream experience.*

Problems in Establishing Manifest Dream Content in Psychopathologic States

The dream experience continues to elude us, and a study of dreams is at this juncture still a study of dream reports. The problems in studying the subjective state of dreaming [71] are compounded by the dream being an experience which occurs in one state of the organism (sleep) being reported later in another state (wakefulness).[59, 81] The categories suitable for the capturing of an inner fantasy experience such as the dream may not be available in waking thought.[81, 89]

An approximate regularity between the dream experience and dream report has been observed.[77] Factors which alter the reporting process will necessarily change the relationship between them. There are qualities inherent both in the patient's communication pattern and in the interpersonal situation of dream reporting which can change the nature of the report obtained. In such circumstances, inferences drawn from the dream report about the dream experience would be open to question. For example, patients with retarded depressions may give brief dream reports; loosely associated schizophrenics may give loosely organized ones; and concretely oriented organic patients may give dream reports focused on details. In none of these situations can we be sure what reflects the dream experience and what is a function of the patient's waking condition. And, not only does the communication pattern of the patient affect the dream report, but the quality of the interpersonal relationship between the dreamer and dream collector importantly determines which dream experiences of the night are recalled and reported, both at night and the next morning.[31, 90]

In addition to those influences which alter the dream report, consideration must be given to items which alter the dream

experience but which may be unrelated to the primary problem under study. In the distinction made between laboratory and home dreams,[24, 25, 46, 79, 92] a recognition of the influence of the setting on the dream experience is emphasized. This factor of setting must be taken into account, or differences alleged to exist between schizophrenic and nonschizophrenic patients may be more attributable to where the patient experienced the dream than to his being schizophrenic. For example, themes of going home in hospitalized depressed patients may be more related to their being in the hospital than to their pathologic mental state.[17, 64, 65]

The variables to be controlled in dream-content studies have not been adequately delineated. I have already mentioned the possible influence on the dream report of the communication pattern of the patient, of the experimenter-subject relationship, and of the setting in which the dream experience occurs. Such factors as age,[69] sex,[20, 45] race,[94] socioeconomic class and psychological mindedness,[65] and intelligence [21, 87] all suggest themselves here as in other psychological explorations. Though these variables may seem obvious, they have not usually been taken into account in dream-content studies, an area of psychological interest in which controlled examination has only recently been introduced.

In attempting to obtain and describe the dream reports of mental patients, at least four additional methodological problems present themselves:

1. It is essential to have an operationally defined, homogeneous population for study and an appropriately matched control group.

2. The method of obtaining the dream report should be specified and comparisons limited to reports obtained in a comparable fashion. To compare the dream reports collected after REM awakenings to those recalled after a night of uninterrupted sleep may be misleading. We have reason to believe that the dream report in the morning is at least partially a *construction* from the dreams of the night as well as being a reproduction of the dream experience. Our approach has been

to collect dreams at night in the laboratory, again the following morning, and from uninterrupted sleep to establish the dream content in a psychopathologic state. This multiple collection permits appropriate comparisons between groups, as well as allowing us to study the selective forces at work in the construction of the dream report—factors which are of high interest but only secondarily related to the dream experience.

3. It is apparent that what will be sought for in dreams will be determined by the theoretical interests of the investigator. However, he should examine a representative sample of dreams so that his concepts are defined in terms of images actually present in the dream reports.[47]

4. The basic approach to the quantification of the dream report has been via the use of rating scales. These have been of either an item- or global-type and directed at both the form and content of the dream.[47] The application of rating scales raises the question of the reliability and validity of the scaling process. Can two raters working independently arrive at essentially similar judgments? They can, but it is invariably a tedious task. The comparison and correlation of dream themes with other measures (e.g., with TAT themes [41, 80] or with waking behavior [13, 32]) is one approach to the validity problem. Our approach has been to use a hypnotic-implantation technique.[91] Assuming that there is a take, namely, that the patient is dealing with the suggested concept—hostility, sexuality, etcetera—we are collecting data on how the concept appears in his dream reports. By giving stimuli of varied intensity, we may be able to see how more or less hostility appears in dreams. Then perhaps the classic "do eight angry statements equal one murder" [47] problem of scales can be answered on an empirical basis.

In the attempt to delineate the specific character of the dream content in a psychopathologic condition, the availability of normative data for comparison would be of inestimable help. The normative studies which are being reported on dream time using the REM technique [27–29, 43, 49, 50, 56, 76, 88, 93] have no parallel in the area of dream content. The normative data available

on dream content are limited to dreams recalled from uninterrupted nights of sleep. The fact that the recalled dream of the morning is only a limited sample of the night's dreams as well as its being at least partially a construction from the multiple dreams of the night leads us to question the adequacy of dreams recalled in the morning as being representative of the total night's dreams. There is need to collect dreams after REM awakenings and to compare them with dreams from uninterrupted sleep to see if recalled morning dreams adequately reflect the large amount of dreaming which occurs. If not, then normative dream data would have to be collected after REM awakenings to establish a basis for comparison with dreams from psychopathologic groups. The solution of using the patient as his own control may not be adequate. There is reason to believe that residual effects of the psychopathologic state on dreams may continue into the so-called clear periods.[12, 17]

In having commented on the value of normative data in dream-content studies, I do not intend to imply that the exploration of dreams in psychopathologic states is the search for, or the establishment of, a psychopathology of dreams. Rather, the search is for the dream content *in* psychopathologic states, which is what Freud meant by the term psychopathology of dreams,[34] which is rather misleading.

Psychopathology is a concept which is anchored in the waking state. The criteria for a determination of psychopathology are based on standards derived from and applicable to the waking behavior of the subject. There is no basis for applying standards from the waking state to a phenomenon occurring in the sleep state or more accurately the D-state.[48] Therefore, a judgment that this is a "psychotic dream" must be taken to mean that the dream is from a psychotic patient and not that the dream is inherently a pathological structure.

The development of a psychopathology of dreams based on D-state criteria is possible. The anxiety dream, which rouses the dreamer, could be seen as a psychopathologic dream. The criterion by which it could be so conceived is that it altered the

state of the dreamer beyond the expectable limits. In such a case, the standards would be in terms of the organism asleep without primary reference to the waking state. If the normal state of the penis during the D-state is tumescent, then detumescence during the D-state would be pathologic.[30] It is unclear whether to view this as psychopathologic or physiopathologic, but in either case there is no necessary referent to another state of the organism.

There has been some work on the search for phenomena which bridge the gap between sleeping and waking. These are studies which have searched for evidence of cyclic patterns, related to the ninety-minute REM cycle, which occur during wakefulness as well as sleep. Such cyclic patterns have been observed in the ebb and flow of fantasy production [40] and oral behavior.[38]

Although the problems in establishing the dream content in various psychopathologic states are numerous, there have been a number of serious attempts to delineate the dream experience in such states. An examination of the literature on the manifest dream in schizophrenia, depression, and organic brain disease reflects what experimenters felt they could see in dreams and what they were interested in exploring. Now, we will review what has been accomplished in establishing the dream experience in schizophrenia, depression, and organic brain disease in order to see what more needs to be done.

Experimental Studies

Schizophrenia

In the relatively small number of studies reported on the manifest dream in schizophrenia,* one can see how effective the injunctions against examining the manifest content have been, despite the call to study the dream so as to learn about psychosis. Those studies which have been reported have not given sufficient concern to matters of design and methodology for one

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* See references 4, 17–19, 22, 26, 32, 33, 36, 39, 44, 51, 57, 58, 63, 68, 72, 73, 75, 78, 84–86.

to feel confident about the findings. Such issues as the use of appropriate control groups, the collection of data in a manner that would permit statistical analysis, definition of the group under study, information about the reliability of the scoring system applied to the dream content, the size of the sample, and the failure to replicate the study are all matters that have not been given enough attention.

It is universally agreed that there is no single feature which characterizes all of the dreams reported by schizophrenic patients. However, certain regularities do seem to exist which enable us to define their usual dream life. For example, the dreams of schizophrenics are often *unrealistic* [17, 18, 33, 57, 68, 72, 73, 84, 85,] in the sense of describing events which are highly unlikely or physically incapable of occurring in the real world. There is a striking *affective neutrality* [17, 58, 72, 75, 85] in their dreams especially when compared with their waking behavior or the expectation which psychiatrists have about such dreams. The *hostility* * expressed in these dreams is relatively open and most commonly directed at the person of the dreamer. On the other hand, the manifestations of *sexuality* in the dream are less blatant than in their waking life, though slightly more frequent than in the dreams of normals. The dream usually *focuses on the dreamer*, who generally finds himself *with strangers* in the dream.[17, 18, 57, 68, 72, 84]

Recognizing that no unique feature typifies all the dreams of schizophrenics, there have been observations of *dream types* which seem to be reported only by them. One example is the *Schrecktraüme*,[17] a banal dream occurring in a withdrawn patient that is frightening to him because of its intense reality. Another is the *Traümdrangen*,[17] also frightening to the patient and described by him as a dream of rapidly changing dream scenes. And last, a dream type has been reported of an *isolated, actionless object* [22] suspended in space occurring in chronic schizophrenics who are capable of reporting the more usual types of dreams as well.

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* See references 17, 18, 32, 44, 51, 58, 68, 72, 75, 84.

Granting the difficulties in establishing the subtype diagnosis in a patient with schizophrenia,[60] there have been attempts to characterize the dream life in the various *subgroups*, albeit not without some contradiction. The dreams of *hebephrenics* are described as coarsely sexual or free of sex; of *catatonics* as motile, aggressive, sexual, and omnipotent; and of *paranoids* as distinctly homosexual and narcissistic in orientation, with frequent fearful dreams of being entered into or overwhelmed.[17, 58, 68, 78, 84] The reactive quality of the dream content in *acute* schizophrenics may be contrasted with the more withdrawn dreams of the *chronic* patient.[4, 19, 22]

The dream reports of the schizophrenic patient can be described from a *formal* as well as a content point of view. The *frequency* [22, 63] of dream reports after REM awakenings is about 25 percent less than one obtains from normals, while in waking-recall studies the schizophrenic is four times more willing to report a dream than nonpsychiatric controls. The *length* [45, 75, 84] of schizophrenic dream reports distinguishes them from those of nonschizophrenics, but they are longer or shorter depending on the comparison group used. Finally, there are fewer *scene changes* [68, 75] in dreams of schizophrenics than in reports from control groups.

It is inevitable in examining the manifest dream in schizophrenia that it will be looked at in relationship to the patient's *clinical state*. This has been done by studying both the individual dream and by observing the dream serially through time.[17, 57] It is felt that an examination of the dream may lead to an early *diagnosis* of schizophrenia,[85] especially if one sees too open a statement of id urges or if the dynamics are too frankly stated.[57, 72] Indications of improvement in the clinical state may first appear in the dream.[39] The changes noted to go along with clinical *improvement* are (1) that the dream reports become more complicated, more frequent, and more affectively laden [72] and (2) the dream report after a REM awakening is better organized,[33] more congruent with the dream report given in the morning,[73] and the content shifts from the patient being at home and outdoors to his being in the hospital and indoors.[63]

Recurrences of the psychotic process may first appear in dreams. These are usually dreams of intense affective quality [17] which often are closely linked to the transference situation.[8, 70]

As the observations on the relationship between dreams and clinical state point out, there is no fixed relationship between the dream and *waking life.* Depending on the parameter being compared, the dream may be congruent with, [18, 33, 68, 84, 86] compensatory to,[32, 36, 55] precede,[39] or lag behind [14, 17] waking life.

What then is the task ahead? It seems to be to apply the knowledge of experimental design and methodology we already have to confirm, reject, or modify these impressions of the dream life in schizophrenia in order to establish its dimensions. Then, the integrative attempt at understanding how these alterations in dream content are accomplished and what they mean can be undertaken in the hope it will shed light on the psychological changes in schizophrenia, that is, what kind of world does the schizophrenic experience in his dreams that is so populated by strangers? And further, these empirical observations on the reported dream life in schizophrenia will provide data for, and a challenge to, any psychology of dreaming. The greater frequency of unrealistic dreams in schizophrenia suggests that a psychology of the dream must deal with degrees of reality in the dream rather than assuming the unrealistic nature of all dreams; though all dreams are unreal, some are realistic.

Depression.

In looking at the work on depression, we find even fewer published reports * on the manifest dream than was the case in schizophrenia. The difficulties in communicating with the depressed patient, the relative lack of interest in studying depressions, as well as the traditional objections to examining the manifest dream all contribute to the limited number of reports. The literature on the manifest dream in depression, though open to many of the same methodological criticisms we

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* See references 9–12, 15–17, 52, 61, 65, 66, 68, 82, 84.

observed in the case of schizophrenia, does, however, reflect a recognition of the value of design and methodological niceties.

As was the case in schizophrenia, there is no single feature to identify the dreams of the depressed. As crucial a feature of the dream report in the depressed as the *affective tone* has been contrastingly described as either obviously depressive in nature [9, 17, 65] or remarkably nondepressive.[17, 68, 82] However, the manifest dream content of the depressed can be characterized along certain dimensions, especially that of *hostility*. The dream reports of the depressed are hostile less often than reports of the schizophrenics but more often than normals.[84] Hostility is present about one half of the time in their dreams and is equally divided between being directed at the dreamer or by him at some other character in the dream.[84] *Sexuality* has rarely been a focus of study in the dream reports of depressed patients except to comment on its simultaneous increase with clinical improvement.[66] Depressed patients' dream reports are more *realistic* than those of the schizophrenic but less realistic than those of normals.[84] A theme of *escape* [64, 65] occurs more often in the dreams of the depressed than in a comparison group. And the depressed dreamer tends to find himself most often involved with *family members* [68, 84] in his dreams.

There has been the rather clear demonstration by Beck that the *masochistic dream type* [11, 12] occurs more often in depressed than nondepressed patients. This description of a dream type unique to depression has not been confirmed by other workers [52, 68] in this field, and even Beck has questioned its specificity in clinical depressions. Observing that the frequency of the masochistic dream does not relate to the intensity of the depression, that it occurs in patients who have never been depressed, and that it continues to occur in patients after their recovery from the depression, Beck concludes that the masochistic dream type is more related to the personality features of the depression-prone individual than it is to the depressive state.

The tendency to study depressions as a single entity has been called to question by recent works [37, 42, 65] which delineate

rather specific differences between *types of depressions.* There have been no reports on content differences in the dreams of various categories of depression other than an observation that the dreams of the *involutional mechancholic* often contain themes of returning to the past.[9]

The *formal* characteristics of the depressed patients' dreams can be used to distinguish their dreams from those of normals and schizophrenics. After REM awakenings, the dream-report *frequency* is less than in normals[65] and about equal to, or just slightly less than in schizophrenics. [22, 63] From a morning-recall point of view, one can obtain dreams as easily from the depressed as from the schizophrenic.[84] The dreams of the depressed are intermediate in *length* between those of schizophrenic and nonpsychiatric patients.[84] Qualitatively, the dream reports of the depressed patient are barren and brief.[68, 84]

There are changes in dreams in the depressed which bear a relationship to the change in the patient's *clinical state.* It has been reported that any change in dream-report frequency and a shift in dream affect from unpleasant to pleasant will coincide with the improvement in the depressive condition.[9] In a REM study, we observed that with a reduction in the intensity of the depression, there was a decrease in hostility and anxiety and an increase in sexuality and motility in the dream report, but no change in dream-report frequency.[66] Our work suggests that no single explanation can relate manifest dream content to the *waking state* of the patient.

The need to study carefully the dreams of the depressed patient is apparent if we are to achieve a secure knowledge of his inner life. This is an undertaking which hopefully will be stimulated by the availability of the REM technique which can enhance the obtaining of a more complete sample of the dream life.

The opportunity to test hypotheses by the use of dream data has already been suggested and demonstrated by Hall.[44] This could well be applied to a number of problems in the case of depression. For example, the direction of hostility in the dreams of the depressed is an interesting basis for speculation

about the role of retroflected hostility in the psychodynamics of their illness.

Organic Brain Disease

The dearth of published reports [3, 7, 17, 21, 80, 83, 87] on the manifest dream life of the patient with organic brain disease suggests an almost complete disinterest in his inner life. The reluctance to examine the manifest dream in general and the hopelessness surrounding psychological efforts with these patients in particular both account for the limited dream literature in this area. A few studies are available, but they are basically clinical and descriptive in nature—with minimal regard for control, reliability, and statistical analysis of the data. The dreams described are from patients suffering with chronic syndromes associated with aging and infection, and from those with mainly intellectual difficulties (i.e. mental defectives).

It is prudent to separate the dream content descriptions from patients with chronic brain disorders [3, 7, 17, 83] from those of patients with primary intellectual deficit [21, 80, 87] because the personality and age of the patient prior to the organic insult, the nature and extent of the disease process, and the length of time the process has been operating could all play a role in influencing the dream experience and subsequent dream report. The dream content of patients with organic brain disorders developing later in life may be characterized as unpleasant, apparently unrelated to day residues, and with frequent themes of lost resources, bodily defects, and being a small child again in the parents' home. In the case of patients who are considered mentally defective, the dreams are usually pleasant, more obviously related to day residues, and with themes of going home, going to parents, or going away from the institution. Male patients with mental deficiency have been observed to have more frequent aggressive dreams, while females have more dreams of being chased.

The *dream type* of *lost resources* [3, 7] seems to reflect the dream life of patients who feel overwhelmed and unable to cope; therefore, it is commonly found in patients with beginning or

frank chronic brain disease. In the dreams of lost resources, the dreamer appears weakened, his feeling is one of helplessness, and the environment is seen as threatening.

The observations on dream content in organic brain diseases of different etiologies (i.e. *subtypes*) have been mentioned only in passing. *Paralytics* [17] dream more frequently and intensely at the beginning of their illness and have the greatest number of endoscopic dreams. *Seniles* and *arteriosclerotics* have dream presentations of drastic anal-impulse tendencies.[17]

In observing the dreams of patients with organic brain disease from a *formal* standpoint, it is apparent that the observations which typify certain aspects of their verbal behavior also typify their dream reports. Their dreams are *brief*, *simple*, *stereotyped*, *circumstantial*, and *bland*. The *frequency* of their dream reports diminishes with increasing severity of their illness. The relationship between dream report and *clinical state* in organic brain disease, as gleaned from the published literature,[3, 7, 17, 21, 80, 83, 87] is a direct and parallel one in contrast to the possibilities noted in schizophrenia and depression.

As the manifest dream has been used to extract the major preoccupations of the patient with organic brain disease (i.e. his lost resources), it could be used to establish the concerns of any group of patients. The need is for more studies on the manifest dream with greater attention to the needs of acceptable method and design—an area of study which has not, but could be, fruitfully pursued.

Summary

In summary, while recognizing the limitations of the studies on dream reports in schizophrenia, depression, and organic brain disease, it does seem likely that such dream experiences, as revealed in patients' dream reports, are capable of being objectively characterized. If this is an achievable goal, it will be possible to accomplish the following:

1. To determine the inner concerns and preoccupations of various patient groups,

2. To examine how alterations in the dream life came about and how these alterations may be related to the psychology of the patient,
3. To provide dream data to test hypotheses about psychological factors in mental disease, and,
4. To provide data for, and to shed light on, psychological theories of dreaming.

The scientific study of the manifest dream in psychopathologic states, we hope, is coming closer to Panacea's healing balm than to Pandora's troublesome box.

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DISCUSSION

ROBERT J. LANGS

WE ARE ALL indebted to Dr. Kramer for his enormously thorough and thoughtful review of work with manifest dreams in psychopathologic states, and I am grateful for the opportunity to discuss his presentation. At the outset, I want to say that it was not the details of the results of the researches described by Dr. Kramer that occupied most of my attention as I followed his survey, but a feeling that we must now sharpen some of the broader issues raised by these studies of manifest dreams. I thought again and again of the need to base our approaches to such work on a sound theoretical foundation and to develop experimental designs which emerge primarily from careful clinical observation and speculation so that we can better provide ourselves with truly pertinent data in order to test and revise our theories. Because of this need, it does not seem idle to begin this discussion by asking, "Why the manifest dream?" I believe we can add to Dr. Kramer's answer, and perhaps even clarify for ourselves, why it is, indeed, the royal road to the unconscious, and more.

I want to underscore my reference to the *manifest dream.* I will not burden you with observations of repeated methodological and conceptual errors in the studies of manifest dream content—errors so difficult to avoid that I fear even Dr. Kramer has at times fallen prey to them (nor will I myself claim immunity). But not to restrict oneself to the manifest dream in a discussion of this very topic can only lead to confused thinking. Further, we must recognize immediately that research with manifest dreams is but one of the several approaches to the dream—one, as we shall see, that taps the multifaceted surface of a rich network of mental content and mechanisms, and one with notable assets as well as liabilities.

The manifest dream is a fantasy, a thought production of a person who is in the altered state of consciousness of sleep, as it is reported or remembered (almost always) in another state of consciousness, wakefulness. Now, while we might immediately think of experimental means of manipulating the

latter with drugs or clouded night awakenings, let us first develop the implications of these basic facts. In regard to the altered state of consciousness, psychoanalytic theory has had much to say since Freud's momentous exposition in his *Interpretation of Dreams*,[1] and recently these statements have been supported by experimental research and careful clinical studies.[2–9] In economic terms, we are all familiar with the conceptualization that during sleep there is domination by the primary process and immediate discharge. To put this in the more recently developed structural terms, we conceive of such a state as promoting primitivization of id derivatives and of ego and superego functions, exemplified by the use of the visual mode, symbolism, and the like. The point is that in this state there are alterations in mental functioning, shifts in the ego's defenses and cognitive controls, for example, which result in an organization of the psychic apparatus different from that in the waking state.[3] In fact, it may well be that entirely different fantasy systems, in terms of content as well as mode of thought and discharge, predominate in each of the states, [3, 4, 6–8] though we must recognize overlap too since we are dealing with a continuum from which we are isolating two extreme points.

But, as Freud noted, the report of the dream in the wakeful state makes a critical contribution too, and it was in part to account for this fact that he developed the concept of *secondary elaboration.* We can side-step issues such as whether secondary elaboration also occurs during dreaming itself (our research with LSD [6, 8] indicates that the waking alignment of defenses continues partial, modified operation in that altered drug state, for whatever value this analogy may have) and merely emphasize that the waking psyche and its organization contribute to the finally reported manifest dream. Actually, this psyche contributes in another important way through the day residue: reality events experienced in the waking state which prompt the formation of the dream. In these waking aspects, the person to whom the dream is told, the one who instigated the dream, and the corresponding situational contexts are all relevant. Lastly, let us acknowledge here the place that the forgetting

of the manifest dream while awake has in the psychology and psychopathology of dreaming so that we, as researchers, do not summarily discard this aspect of the problem but instead include it as a meaningful phenomenon for study.[1]

It seems to be this unique straddle upon reality and psyche, upon the various levels of psychic organization, and upon both the conscious and unconscious (topographically) which gives the dream its uniqueness and its exceptional capacity as a "royal road," leading from the manifest to the latent, from the id to the ego and superego, and from the day residue to the infantile wish—not the unconscious in isolation, but the unconscious fantasy as it grows out of the day's reality and out of the past and present life of the person, and further, as it reflects some kind of totality of the dreamer's psychic apparatus and his relationship to reality. This is what we find condensed in the manifest content of the dream.

Now, if this is a brief overview of the formation and reporting of a manifest dream, how do we go about reversing the process, so to speak, in order to uncover all of these contributions, including that which is repressed and disguised? It was again Freud [1] who provided the first meaningful answer: by listening to the dreamer and his associations to the dream. It was this alone which brought the concealed meaning of the manifest dream, or to use Freud's terminology, its latent, disguised content, to light. Let us recall that this was not an exercise in heuristics alone. Freud was relentlessly pursuing clues to the elusive unconscious aspects of mental life as he sought after the keys to psychopathology, and the analysis of dreams was a rich source of data. He, and then his followers, were also greatly concerned with therapeutic endeavors, and it was interpretation of the latent content and dream work (i.e. the psychic work and mechanisms which modified the latent dream content, creating the manifest dream) that were most meaningful to the therapist and his patient. Work with manifest content alone smacked of the darkness of the old dream-symbolism books from which Freud had led away into the light of something far more personal (a dream and the dreamer's own asso-

ciations) and far more meaningful as well. Knowledge of unconscious mechanisms which could be discovered only by comparing the latent and manifest content, and of unconscious fantasies which could be deciphered only through associations, were some of the rewards of Freud's approach. Therapeutically, interpretations that came from the patient's associations, from his life and thoughts, were far more effective than those which drew upon the analyst's own association or even educated guesses (techniques which quickly fell into disrepute). Thus the manifest dream itself rightfully was cast into the shadows.

It is my impression that it was not discontent with the role of dreams in psychoanalytic treatment nor a dread of "the unconscious" itself (a dread which has led to some deviant, so-called analytic schools of thought, and by confounded association, to the mistrust by many classical analysts of work with manifest dream content) which led to a dawning interest in manifest dreams, but rather, growing concern with psychoanalytic investigative methodology. Understanding of this point might well help allay much of the anxiety and hostility engendered in dedicated psychoanalysts by manifest-dream studies. Further, it helps to clarify the purpose, scope, and limitations of such investigations and to define them as psychoanalytic, not in the therapeutic sense at all but in the research sense alone.

While manifest dreams alone are used clinically as guideposts by every analyst, as Ella Sharpe [9] in a thoroughly classical analytic discussion so clearly expounded, it is the manifest dreams in conjunction with the associations which dictate therapeutic interventions. And while I envision careful research which will utilize both the manifest dream and associations as raw data in order to systematically investigate manifest *and* latent content, the relationship between the two, and the dream work as well (all of which also vary with the type of psychopathology, I would hypothesize), it certainly made sense for analytic experimenters initially to study the more manageable and quantifiable manifest dream alone. While such researchers gave up access to idiosyncratic aspects of the dream as well as

to most of the dream work and to a good part of the latent content, they were still left with a rich source of information. Here, too, it has been overlooked too often that the manifest dream is a *derivative* of the latent dream, not an unrelated screen. It is a meaningful product of psychic work itself (i.e. the dream work and secondary revision), performed at two levels of consciousness, not a discardable wrapping. Speaking structurally, manifest dream content has contributions from the id, ego, and superego which—while often of a different nature from the contributions that these macrostructures make to the latent dream content (and often of a similar nature too, as in relatively undisguised dreams; here again we need sophisticated research)—are so highly condensed in their final expression that manifest dream content alone stands meaningfully and accessibly related to the total personality. Thus, studies of manifest dreams have a proper place in psychoanalytic experimental investigations, as distinguished from therapy, and should, in their precision and exploratory nature, aid us in expanding psychoanalytic theory itself.

I have taken this time to develop a theoretical framework for our consideration of manifest dreams in psychopathologic states because I firmly believe that clear theoretical conceptualizing leads to our most meaningful research. One can readily see, for example, that this exposition of theory leads us to predict that manifest dreams will indeed reflect the psychopathology of the dreamer, much as they will reflect his character structure and other aspects of his total personality. The question of the specific relationship between the manifest dream and other clinical parameters of psychopathology then becomes a complex one necessitating additional study through isolation of the multiple variables, many of which Dr. Kramer has already noted. To summarize briefly the relevant theoretical notions, a symptom may be viewed as a waking manifestation of the total personality's attempt to solve a conflict between the id and the super-ego alignment in which reality is taken into account. While the symptom is a waking manifestation, there are derivatives from unconscious parts of the psyche, and further, the

symptom is superimposed on a particular character structure. The dream may at times directly reflect struggles similar to those reflected in symptoms and character formation, as both Freud [1] and Ernest Jones [2] stated, though the conditions of its formation and expression differ from that of the symptom or character neurosis. Studies which take into account the differences between the symptom and the dream, and factors such as the alterations in consciousness characteristic of schizophrenia, should prove particularly enlightening; variables such as structural balances, predominant fantasies, economics, the role of reality, and the like are involved.

Broadly, the studies reviewed by Dr. Kramer indicate that there is considerable overlap between clinical psychopathology and manifest dream content in that dreams from persons with a given type of psychopathology share a significant number of identifiable features with one another. This, as I noted, is tantamount to saying that a given person reflects some comparable aspects of his psychic functioning in both symptoms and manifest dreams, which is not at all surprising, but further, it especially warns us to not reify the dream or overdo our isolation of it as a datum. Notice, too, that these findings with manifest dreams are far easier to obtain than anything comparable for the dream work or latent content, leaving these latter as major areas for study. I would also hope to see these studies extended to every psychopathological and characterologic entity in order to determine whether we will always find parallel expressions in manifest dream content and psychopathology, and to specify the variations which are bound to appear. Because these are crucial aspects of the question of the exact relationship between manifest dreams and psychopathology, it is disturbing to note the absence of reference to manifest-dream studies which distinguish persons solely within the neurotic categories. Recently, I ventured a small step in this direction in studying manifest dreams from adolescents as compared to adults, using the hypothesis that these dreams would reflect the adolescent state as differentiated from adulthood as they are both psychoanalytically conceived, and found tentative but broad confirmation.[5]

In many of the studies reviewed by Dr. Kramer, unexpected findings appear. Where this may lead depends first upon validation and replication; some findings may suggest revisions in our conceptualization of both dreams and psychopathology. For, beyond the value of manifest-dream studies as means of quantitatively delineating aspects of psychopathology and personality, and changes in these, hopefully lie new insights and progress in our theory of the psyche in all of its dimensions. Manifest dreams appear to comprise one road toward these horizons, perhaps a bit more barren of scenery and depth than others but certainly a bit more precise in a domain where precision may well mark new paths of considerable promise.

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Chapter 16

A Summary

ROY M. WHITMAN

WE HAVE COMPLETED a series of exciting discussions. Those people who have been concerned with the problem of the dream as contrasted with the problem of dreaming have been reassured that there are many vigorous workers in this field who will not let the excitement about the physiology of dreaming obscure their focus on the psychological processes involved.

Dr. West opened these deliberations by tracing his own career of long interest in human experimental psychopathology. He mentions, as does Snyder somewhat ruefully, some of the many names that have been applied to the REM state such as paradoxical sleep, a third state of existence, and so on. On a light note I must add another term wittingly suggested by Oswald. That is one derived from the phenomena of the erections accompanying the REM state, thus the Tumescent Penile Period (TPP). But unfortunately 50 percent of the dreamers are overlooked by this term so we cannot use it!

Dr. West reassures us that *Bartlett's Quotations* reveal that there are more quotations about dreams than about hate and war, but still less than those about love.

He suggests, among a number of fascinating future lines of investigation, the cross-cultural use of the dream, a line of inquiry picked up later by Dr. Ullman in his discussion of the socialized aspects of the dream.

As usual Dr. West regales us with fascinating tidbits of information such as that nursing mothers and their babies have synchronous rapid eye movements, or that tyrosine deprivation seems to cause the disappearance of REM sleep which is restored by the addition of small amounts of this essential amino acid to the diet.

He reminds us once again that the earliest symptoms of somatic disease may be anticipated by dreams[3] and they should be included in the physician's armamentarium in terms of differential diagnosis of such things as headache. I remember once in the receiving ward noting that a patient who came in complaining of pain in the right lower abdomen told about being awakened by a dream of hiccuping. The spasmodic nature of this pain as demonstrated by the phenomena of diaphragmatic contractions suggested a colic of some type rather than the appendicitis as was suggested by the surgical resident. Blood in the urine soon pointed to kidney pain which was verified by an intravenous pyelogram on x-ray and eventual recovery of the stone.

Dr. Snyder has provided a superb review of the *physiology of dreaming*. With his customary scholarly orientation to the field of psychiatry, he has unearthed Wilhelm Griesinger as antedating Ladd's suggestion that the movement of the eyes occurs concomitant with dreaming. Dr. Snyder has set the essential orientation of this group by comparing the biological function of respiration with the superimposed process of speech as essentially being analogous to the biological process of the REM period upon which is engrafted the process of dreaming. In general, the REM phase of sleep would seem to be a necessary but not sufficient background for the process of dreaming.

Dr. Snyder amplifies Dement's comparison of the waking state to the REM state by pointing out that the REM state suggests an exaggerated version of a waking, hyperalert state rather than ordinary waking. Dr. Snyder goes on to make a comparison of the REM state with convulsive states because of the brain's hyperactivity, elevation of temperature, as well as the impressive increase of blood flow which was previously found only during Metrazol convulsions.

He is not content to stay totally in the physiological realm and points out that there are two major transitions from the data of the dream report (i.e. first by the transition of sleep or dreaming to wakening, and second by the translation of

subjective experiences to verbal reports). This produces not only the problems of translation but also the even more complicated variable of the listener, whether actual or fantasied, as with the use of electronic tape.

While most workers in the field are content with the parallel between rapid eye movements and the dream as we usually understand it, certain crucial tests, such as tests of incorporation into subsequent dream recall, have been done only rarely, says Snyder. This incorporation of stimuli is of course not only significant for drawing parallels between the dream report and the dreaming state as "visualized" on the polygraph, but also is important in regard to the question of there being a sleep-protecting function of the dream in the REM period. It seems quite clear at present that the sleep-protecting function of the dream (i.e. the appearance of the dream in order to deal with influxes of external or internal stimuli) is totally inconsistent with the periodicity and rhythmicity of this biological phenomenon.

Dr. Snyder ends his discussion and summary of the most recent physiological findings by offering his own metaphor concerning the contribution of the biological processes of REM dreaming: he suggests that the REM states supply the energy "to illuminate the screen as well as the projector mechanism to crank the film and possibly the film itself." But all of this would go on regardless of whether the film contained the meaningful images we call dreams. It is interesting to compare this analogy with one which had been used early in the history of recent dream research. The onset of REM states was likened to the raising up of a curtain, wherein members of the audience stopped body movements and fixed attention on the stage in which they would watch the action and would respond with varying autonomic responses to the stimuli presented to them in the drama taking place before their eyes.

I should like to state and amplify Dr. Paul McLean's[18] analogy of the dream mechanism to a television screen: The ascending reticular system supplies the wavy lines and dots, the

visceral brain the dark and light intensity contrasts, but the cortex supplies the fine tuning which makes formed images possible. All these metaphors are attractive and really not incompatible.

Dr. Baldridge has highlighted the sequences in the dreamer prior to the advent of the REM state, as well as the events following it. Thus, while there is a great decrease in recalled dreams in from seven to fifteen minutes after the termination of the REM state, there is also a rapid rise in dream recall—not only after three to seven minutes of REM sleep but even in the NREM phase later in the cycle. Thus the dream is not only a phenomenon distinguished by being rapidly forgotten, but the relationship even intraorganismically is more complicated than that: memory is not only lost but is regained dramatically only to be lost again in the morning.

Baldridge suggests that the neurophysiological model of dreaming suggested by Hernandez-Peon[16] is well suited to accommodate observations of dream *development*. Hernandez-Peon suggested a progressive decrease of inhibitory control over brain centers involved in recent and remote memory. Baldridge closes his discussion by suggesting that more attention should be paid to individual differences and individual variability.

Dr. Hawkins in his discussion of *a Freudian view* raises the question of extrapolating from one level of discourse to another. In this connection, I have been most impressed by Waelder's[24] six levels of approach to clinical data: *first* are the data of observation. The clinical psychoanalyst learns things that are usually not available to other observers, and he may only get closer to the "truth" over a long period of time; these data are then made the subject of interpretation regarding their interconnections as well as their relationships with other behavior and personality products—this is the *second* level of clinical interpretation; the *third* level is that of clinical generalizations made about particular constellations, families producing certain personality types or particular backgrounds of psycho-

pathological symptoms, et cetera. The *fourth* level is that of clinical theory. This involves the formulation of certain theoretical concepts such as repression, defense, return of the repressed, projection, or displacement. The *fifth* level of abstraction would be that of the level of metapsychology which would involve such concepts as cathexis, psychic energy, the death instinct, and a structural division of the mind into id, ego and superego. And finally the *sixth* level of abstraction would be that of Freud's psychoanalytic philosophy such as a faith in the possibility of human betterment through the exercise of reason.

What Waelder points out is that one of these six levels is often arbitrarily chosen to correlate with neurophysiology, most usually, as Hawkins notes, an attempt to parallel the id or ego with certain neurophysiological processes. Waelder goes on to say that the levels of abstraction are usually inversely attacked according to their distance from the data, that is, philosophy and metapsychology are much more often attacked than clinical observation. To extrapolate this problem to the problem of dreams means that we have to consider carefully which aspect of the dream we will try to correlate with the neurophysiological data. Certainly, as we shall see in reviewing some of the latter chapters of this volume, we are safest when we deal with the manifest content of the dream, for that is closest to the actual dream as experienced by the subject or patient. But safety in formulation may not be as promising as the possibility of correlating physiological levels with the *latent* content of dreams.

Hawkins, in his review of the Freudian psychology of the dream, makes the cogent addendum to Cartwright's hypothesis that a heightened level of arousal and a reduction of usual sensory input are necessary for dreaming mentation which then occupies awareness. His main point is that with dreaming there is a reduction of *external* sensory input and an ~~increased~~ internal sensory input. Hawkins suggests that these internally generated signals represent the neurophysiological basis of

Freud's early concept of topographical regression during dreaming in which the system perception is activated. Hawkins feels that psychoanalysis has paid insufficient attention to the state of paralysis earlier alluded to by Snyder since this is so crucial for the discharge of drives.

Hawkins closes by repeating some of his interesting analogies of the need for sleep over and above the restoration aspects as having to do with memory consolidation analogous to computer function. This is similar, but on a higher level, to Robert's old theory of the dream being an excretory product clearing the organism for further ingestion. This is the use of an oral-anal model of dreaming in which "constipation" leads to clogging and insanity.

He repeats the interesting speculation that deep sleep or the S-state accomplishes the traditional resting and restoration of the mental apparatus and that the D-state is responsible for active information transfer, sorting, and storing. He joins with Ephron and Carrington[10] in thinking of the D-state or REM state as a periodic internal sensory input to keep the central nervous system in a ready state.

I have been intrigued recently with the suggestion of memory being improved by using bizarre images as mnemonics. Thus to remember the closest planet to the sun, Mercury, we could think of the statue of the god Mercury speeding along as the figure on the hood of a motor car and then melting to shapeless metal in the hot sun. I can guarantee that even with the huge amount of data in this volume you will not forget this image. This would seem to be an active mastery of the images of the passively experienced dream state, so easily forgotten.

Dr. Trosman distinguishes between REM dream reports and their prosaic quality as compared to spontaneously remembered dreams. Though he alludes to the absence of a subject-experimenter therapeutic relationship as possibly significant, we have specific data from a study on patients in therapy* who also sleep periodically in a dream laboratory. As with the REM

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* Unpublished data (Drs. Offenkrantz, Thompson, Tobin and Whitman).

dream by my patient discussed by Dr. French, these dreams under the influence of the analytic therapeutic relationship are as rich as any dreamt at home. Examination of the tapes from these subjects suggests that the patient-subject is talking directly to the analyst, a highly charged dyad. Dr. Offenkrantz in his discussion of Dr. French's contribution has essentially elaborated the same thesis with a similar type of research as our study[28] but in an analytic setting. The dreams reported are as rich as any which were spontaneously remembered or reported in clinical analytic work.

Dr. French (with Dr. Whitman's collaboration) has offered us his formulation of the theory of *focal conflict* as the principal meaning of the dream arising out of the dream work and cognitive structure. His basic assumptions are that the various meanings of the dream fit together intelligibly, and, secondly, that the interpretation fits in with the life situation of the dreamer. He stimulates the interesting idea that we might try a particular level of *latent* conflict such as the focal conflict as a possible comparison with the physiological parameters of dreaming. For example, does competitiveness as in the dream presented by Dr. French lead to a different type of autonomic activity as compared with sexuality? Since this approach emphasizes a level of formulation which explains as much as possible of the dream and the associations, as well as the context in which the dream occurs, this certainly seems a more attractive true-to-life formulation which avoids the seemingly strange disguises and secondary elaboration of the *manifest* content and yet keeps the flesh and substance of the human dilemma. Hall's thematic analysis which we have found so helpful in our studies is very similar to this approach and is one that Hall has found rather intriguingly useful in biographic studies. Anyone who reads Hall's book on content analysis or has heard him use his relatively uncomplicated quantitative approaches to the dream data will recognize a commonality between his approach and French's equally simplistic but not simple clinical approach to the dream.

French's analysis of the dream of the patient from our laboratory is a paradigm of the experimental dream as garnered in the context of an ongoing analysis and shows the various levels of producing which the patient experienced in the course of her yielding up the dream (i.e. the dream is equated to feces, urine, a gift, and a penis, all in the interest of pleasing the analyst by giving him something).

Bernfeld, as quoted by Waelder,[23] gives an interesting example from Gestalt theory which exemplifies French's focal-conflict theory better than anything I know. Take the words *cooking stove, kitchen, cupboard, glass vials, chemicals, drawing board, inks, money, bills, arrest* . . . there is only one plausible solution—a workshop to make counterfeit money. There may be other solutions to this without the definite feeling of "fit" or without including every detail, but other solutions leave out one item.

Dr. Offenkrantz speaks from his experience with a group of analysts who are working with patients in analysis who also go to a dream laboratory three times a year. He offers a different interpretation of the material and emphasizes the importance of the experimenter-technician as entering into a therapeutic triad wherein different coalitions arise, such as the patient competing with the experimenter (the husband in this patient's associations) for the analyst's interest. The research laboratory itself may be used as a focus of the defense transference in dealing with the analyst.

The next chapter I will refer to is that by *Dr. Bonime* about the *dream as human experience*. Dr. Bonime points out that he is a culturalist, which is essentially someone who considers personality as a product of culture and interpersonal experience. He is opposed to an instinctual theory of personality. Bonime's main emphasis is on inquiry into the feeling in dreams. He cites Hall and Van de Castle[15] who were "surprised at how few emotions are actually reported" in dreams. Then Bonime goes on to give as an example the varying meanings that a rainy day in a dream may have: a pleasurable feeling; pleasure in

spoiling someone's picnic; the childish pleasure of abandon; or the association with gloom and depression. In this respect, Bonime is particularly insightful in pointing out, as he did in his book [4] on the varying meanings of the snake symbol, how the same symbol may be used so differently by different people.

Bonime offers the hypothesis that a strong feeling in a subject's dream is usually spontaneously reported although the affect may only be implied by the use of an emotion-laden term. Bonime follows up his suggestion to look for affect by even suggesting that the subject be trained to seek affect. Nevertheless, we are getting into an important area of interpersonal distortion if the investigator pursues the appearance of affect, because we then get into the whole area of submission and compliance and thus the evoking of affect via inquiry.

Bonime raises the interesting question as to whether dreaming activity influences the personality of the individual even though he may not recall it. We know that the recalled dream may be an active influence on the individual, but one can intuitively feel that the unrecalled dream must have some effect as well. On the other hand, both of these may be due to an underlying orientation, that is, both the dream and the ensuing effect may be related to a third "deeper" substrate of personality function.

Dr. Ullman in his discussion of Bonime's contribution offers the plea for a return to the sociology of the dream (i.e. the way that institutions and social structures are experienced by the dreamer). Erikson, in his study of the Irma dream,[11] pointed out the tremendous resistance to this sort of interpretation when he discussed an interpretation he made to an analytic-institute graduate of his identification with the Catholic ritual of shaving the head. I recently saw a young stockbroker who reported a dream of being chased by some young Negroes. In addition to his fear of male attack which had been obvious enough before, he also gave some fascinating associations to his tremendous social guilt toward the Negro, a feeling shared by many white people but successfully submerged under a

flood of indignation about lawlessness and rioting. I agree with Ullman that we cannot underestimate the force of the social institutions internalized into the superego or the ego-ideal; indeed, Riesman[21] points out that this is a powerful motivation in terms of "white girl, Negro male" marriages. These young women are trying to remedy some tremendous social wrong through the giving of themselves.

Dr. Meier in his *Jungian approach* suggests that the experimenter might function as an external censor. This is, of course, very similar to the work of our group's "Which Dream Does the Patient Tell?"[28] in which it was very clear that the relationship with both the experimenter and the subsequent dealings with the therapist were deeply influenced by the ongoing relationship and expectations the subject had from both. But this is also very like the way in which every analyst becomes an externalized superego or censor for each patient.

Dr. Meier wonders if the homeostatic function of dreams does not imply that they should be left alone, similar to the folkloristic theory of the goblins safely putting the house in order at night and washing up the dishes—as long as they are left unobserved. Incidentally, I must add here that with my own interest in the psychodynamic meaning of fairy tales, I have often felt that goblins represent children and that the myths of the cooperation of the little men at night represented the hope that the children would help the parents and do their tasks for them since the grownups had done so much for the children during the day. On the other hand, children often help their parents just by going to sleep!

Dr. Meier refers to the problem of speeding up therapy via the production of more dreams. We, of course, then become faced with the problem of information-input overload. I have often had the fantasy of describing what is the perfect dream as offered in a psychoanalytic session. I think it would be a rather short condensed dream wherein the telling is limited to several sentences with just a few extraneous details. This dream would seem to rise up from an ongoing relationship

with the therapist and point up sharply what had been discussed between them and what direction the therapy was going to take. Any clinician working with dreams knows that his typical response is one of dismay rather than of pleasure when he meets with voluminous dream content which goes on and on.

Dr. Meier raises the question of homeostasis which is often put forth as an explanatory concept; but one wonders exactly what homeostasis means. What is the range of the limits? It is very clear that the psychic apparatus does not really want to maintain a low level of excitation since such aspects of the human organism as curiosity and the pleasure of indulging in foreplay suggest that there is also the need for incoming stimuli of varying types and that, very often, increases in tension and energy in the psychic apparatus are pleasurable and indeed are deliberately sought out. Jung's basic dream theory of compensation is not referred to by Meier, although Dr. Wheelwright picks this up. We would like to have seen this dealt with as a contrast to the continuity theory held by the ego psychologists such as French or Hall.

Dr. Wheelwright reiterates Jung's idea of the dream expressing the way things are, or a practical grasp of the situation (French) or a nondefensive view of the person's own life situation (Hall). Wheelwright says that this means that Jungians do not distinguish between latent and manifest content. I question this, for what seems to be an adherence strictly to the manifest content often involves a number of instantaneous translations which the clinician has learned to do so quickly that he does not even know he does them.

Dr. Shulman in describing the *Adlerian view* of dreams again emphasizes that emotional attitudes in the dream point to its actual meaning more than the figurative or verbal elements. Adler emphasized a final, or purposive, point of view. Adler, like Jung, emphasized the prospective function of dreaming—an anticipation of future conscious achievements, something like a preliminary exercise or sketch.

The Individual Psychology of Alfred Adler regarded dreams

as originating in unfinished and unsolved problems about which the individual is concerned and has been unable to solve during the day. Adler emphasized, therefore, the rehearsal-function and trial-solution aspect of dreams. In addition, he emphasized the self-deception of the dream, even emphasizing that the dream's most important purpose is to lead the dreamer away from common sense. Although Dr. Shulman emphasizes that Adler meant by the term *common sense* something similar to consensual validation (Sullivan), this idea of a dream is still quite at odds with French's concept of the dream which deals with it as a commonsensical grasp of a complex interpersonal situation. In addition, Adlerian psychology implies a certain conscious emphasis so that the explanation of a nightmare is not a failure of a mechanism of absorption which Freud emphasized but rather that the dreamer has some private reason for frightening himself.

Very important to the Adlerian contribution to psychoanalysis is the whole idea of life style. Current-day psychoanalytic theory emphasizes cognitive style or styles of the ego in coping in ways which are not too dissimilar from the Adlerian emphasis. Nevertheless, modern Adlerians feel that the analysis of the family constellation and early memories lead more easily to the life style than do dreams.

In discussing symbols, there is an emphasis on the metaphorical concept of the dream similar to that which Bonime emphasizes in his approach: thus wild animals usually refer to the dangers of life whereas Freud would have these more usually refer to instinctual impulses which are feared.

Dr. Shulman goes on to emphasize some of the well-known clinical aspects of dreaming such as the appearance of dreams in a nondreamer as signifying his willingness to reveal himself both to himself as well as to the therapist. The Adlerian therapist recognizes the fundamental importance of dreams in modern psychotherapy and finds himself probably closest to the approach outlined in Bonime's book, *The Clinical Use of Dreams*.[4] Bonime has divided the elements of dreams into (1) action, (2) individuals, (3) surroundings, and (4) feelings.

These four subdivisions are useful in all clinical work. Dr. Shulman adds two final functions of dreaming to the usual Adlerian formulations: (1) self-clarification for the dreamer and (2) providing some entertainment for himself. While this might seem to be at a frivolous level, we are reminded that it is not too different from the currently popular idea of endogenous sensory input as being necessary for both the development and the alerting of the central nervous system.

Dr. Kurt Adler, the son of Alfred Adler, emphasizes the psychosomatic unity of man in his discussion. He is completely in agreement with the continuity theory of dreaming in which the dream, like all other manifestations of the individual, expresses the life style as the dreamer moves toward his fictional, final goal. Emotions will urge the dreamer to pursue his goals; this may be contrasted with the existential approach which states that emotions do not comprise an impelling force but rather an accompaniment of behavior. He quite correctly points out that the dream does not serve the function of self-clarification but may be used *in the service of* it.

Dr. Lehmann has given us a view of *existentialism* as essentially a "here and now" psychology. He particularly quotes Boss [5] and compares him with Freud. He does this with a particular dream in which Freud described the dreamer as seeing his brother squeezed into a cupboard. Freud interprets this dream as the expression of the dreamer's unconscious wish that the brother should restrict himself and become less expansive in his way of life (incidentally as Jones cogently pointed out in an article several years ago,[17] there are almost no infantile wishes represented in Freud's interpretation of dreams so that in a way he was as much a "here and now" psychologist as the existentialists take credit for being). Of course, Dr. Lehmann says that Freud was an existentialist at heart; at various times, he has been called many things at heart, such as a Marxist. What is probably clear is that he was *not* a Freudian at heart in the sense of narrow adherence to one fixed theory.

Boss had a patient who had a similar dream. Essentially Boss' interpretation is that this is the only way in which the

dreamer can relate and refer to anything in the world (i.e. a squeezed, shut-in, and narrow manner). We can certainly add to this the general paradigm that, while an interpersonal cast of characters may appear in any dream, one can also "try on" an interpretation in which every character in the drama may represent some aspect of the dreamer. Jung called this the objective and subjective approach and emphasized that they were not mutually exclusive. As I wrote recently in "Utilization of Dreams," [29] the question of balance is often useful in dealing with this dilemma, that is, if the patient emphasizes the interpersonal transactions that go on in the dream, it behooves the therapist to consider even more that the individuals represented in the dream narrative may hide or represent some aspect of the dreamer. And, of course, there is also the transference aspect of any dream—does he want to box in the therapist in the example mentioned above?

Dr. Lehmann gives interesting examples of what I would call the metaphorical, predominant theme, or illuminating distortion, approach to dreams. This raises the whole question of levels of latent conflict. Certainly tedious redescriptions of dream conflicts in terms of sexual impulses with countermotives do a great injustice to the complexity and subtle nuances of each individual's dream. We are therefore much more accurate in the sense of being closer to the data as well as being therapeutically more helpful to interpret to the dreamer at a much lower level of abstraction than the metapsychological formulations which are on the fourth or fifth level that I indicated in Waelder's scheme. This is very similar to French's concept of the focal conflict.

For reasons that I have mentioned above in terms of "What is the ideal dream to be given in therapy?" I have always been somewhat discouraged at the various interpretations and reinterpretations of Descartes' three dreams. In other words, if a patient gave me three such dreams in a therapeutic relationship, I would undoubtedly deal much more with the resistance manifested in the intellectualization than I would with the content of the dreams—interesting and seductive as they might be.

Thus, for really accurate interpretation, one would prefer not only the text but the *con*text.

Dr. Strauss' discussion of Dr. Lehmann's paper adds Binswanger's interpretation of a certain type of dream of rising and falling. This could represent some endopsychic perception of the rise and fall of REM-state discharge, an idea which is related to Seitz's fascinating suggestion of some dreams perceiving the function of the mind itself.

Calvin Hall has set before us the problems of *quantitative approaches to dream content*. His presentation is an excellent summary of material which is spelled out in more detail in his book.[15] He reminds us that there are two methods of approaching the categorization of dreams, the first being the empirical one that is abstracted from the material itself and the second, the theoretical one which is derived from previous data but now is to be applied to the new data. Hall makes a particularly good case for contingency analysis as originally described by Osgood. It is a method which enables one to determine which elements occur together more often than would be expected by chance. It would seem to me a method particularly well-suited for computer analysis. From the point of view of psychosomatic investigation, it would also seem that this method could pinpoint the particular concern over bodily function or anatomical area that preoccupies the person. Thus, his example in which the elements *tunnel*, *pressure*, *explosion*, *brown*, *dirty*, *water*, and *empty* kept recurring certainly would suggest concern over the lower bowel function and therefore, because of the preoccupation, potential dysfunction. In this connection, I must put forth the clinical observation that many neurotic patients who complain for years in a hypochondriacal way about certain parts of their body seem to end up with difficulties of an organic nature and in that very part more often than would be expected by chance.

Hall attempts to deal with one of the knottiest problems of dream research, the problem of intensity. He suggests that frequency of occurrence is the best index to intensity. Certainly this is the easiest method with which to train technicians,

but clinical experience in dealing with intense symbolic imagery makes one wish that we could make some qualitative conclusions of intensity without dealing with frequency. Usually in this respect we are dealing not only with some of the defense mechanisms suggested by Hall, but particularly those of condensation; therefore the problem which Freud referred to repeatedly as the economic problem continues to remain one of the most difficult problems in dream scaling.

All sorts of divisions of the dream from the whole night of dreams to individual words have been used for scaling. In listening to a recent talk by Mihaly,[20] I was struck by the intriguing idea that even letter counts would someday be feasible by computer, although one can wonder what they might yield. Mihaly cites the preoccupation of early rabbinical scholars with the fact that Genesis starts with, "In the beginning . . . ." Why is a "B" used and not an "A" which the Ten Commandments begin with (I am the Lord, *am* appearing first in the Hebrew)? The rabbis examined the configuration of the letter "B" and decided that the opening to one side was significant, and so on. . . .

Dr. Van de Castle reminded us once again of the historical legacy of all types of dream research, in this instance dream-content analysis. He points out that empirical data can lead to theory as well as theory leading to additional empirical data-gathering. Thus he gives the intriguing example of an infantocentric scale deriving from the fact that children appear more often in mothers' dreams during the third trimester of pregnancy; thus, he decided to construct a scale to look for other examples of childbearing and child rearing in less obvious forms or derivatives. The further uses of this scale are for attitudes toward the postpartum period and then for the comparison of different groups of even a cross-cultural nature.

He uses his quantitative approach to note the decreasing importance of animal dreams in developing children and then compares this finding with other cultural groups. His data are clear, but his interpretations—like all dream interpretations, even of a quantitative nature—are open to question. Thus the

dreaming of primitive groups and their similarity to the young of our society on the basis of animals in dreams may be a function of the demands of the environment more than of any decrease of complex cognitive processes.

The next presentation, by *Dr. William Domhoff*, takes off at the point where Hall stops (i.e. the setting in which the dream report is made, the *home versus laboratory*). In a larger sense, this deals with the whole problem of data collection whether it be writing, tape recording, told directly to another individual, dictated verbatim or resummarized from a few key words (the method patients often use and which in my experience has led to the problem of secondary elaboration being such a major aspect of the dream report in clinical situations). Domhoff, in talking about the problem of making a laboratory into a home and a home into a laboratory, deals with this very significant problem of data collection which plagues the entire field of the social sciences.

Waelder [23] has made some extremely cogent observations about this problem in his description of loosely coupled and tightly coupled systems: he quotes Warren Weaver, who in his presidential address to the American Association for the Advancement of Science pointed out that the great success which the physical sciences have experienced relates to the fact that physical nature seems to be loosely coupled: that is to say, excellent workable approximations result from studying physical nature bit by bit, two or three variables at a time, and treating these bits as isolated. Furthermore, a large number of the applicable laws are linear. Animate nature on the other hand presents highly complex and highly coupled systems—it takes a lot of variables to describe a man, and you cannot often usefully study these variables two at a time. Another way of looking at this problem is to say that the investigator intrudes into the field when he is studying the social system whereas he stays relatively, but not completely, out of the field in the physical sciences. One way of approaching this problem, of course, is to treat highly coupled systems such as the human being as if they were loosely coupled. Thus a

vast amount of data may be collected with careful statistical safeguards and controls. But then we lose the very liveliness that we had been seeking—the liveliness which this volume reflects.

Domhoff's initial major finding in comparing home and laboratory dreams was that there was more sexuality and misfortune-aggression in home dreams. Laboratory dreams on the other hand had more characters, more elements such as writing material and money, which seemed to be related to the experiment. An extremely significant finding in terms of ego style of coping with stress, characteristic probably of many if not all people, was distancing—that is, dreamers were more likely to be involved in aggressive interactions in home dreams while in laboratory dreams they were more likely to merely *witness* aggressive interactions. This need to distance and dampen feelings would seem to be crucial in the disappointing blandness which several investigators described as characteristic of laboratory dreams.

Dr. Domhoff goes on to deal with some of the problems of dream collection. His method of having patients phone in reports seems to me an ingenious use of recording devices which can be attached to a central telephone. He concludes from his unpublished data that recency, length, and intensity are not the only factors in dream recall. Certainly, as we have indicated, earlier problems such as to whom the dream is told, what the nature of the relationship is with that person, what the orientation of the person is to the experiment, are all relevant to the problem of dream recall. Several times Domhoff returns to the idea of descending upon an innocent population and getting them to tell their dreams. This is something that our group has considered as well: we have thought of having a nurse awaken an entire ward of patients and then having a team of interviewers fan out among the group, collecting their spontaneously remembered dreams. Here we would have the problem of hospital contamination which is probably somewhere between laboratory and home-dream influence. Nevertheless, the hospital population, having been hospitalized for some time, is a fairly stabilized and well-adapted group.

Finally Domhoff ends with a plea for a natural-history approach to dream research. Perhaps there is a broader lesson from this in terms of using such an approach for all types of research with complex variables of a tightly coupled type. Certainly the ethologists in their fascinating research findings have emphasized the importance of simulating the natural habitat of the animal as an important source of data.

Dr. Sampson's discussion of Dr. Domhoff's contribution led to the issue of selective recall of dramatic dreams as compared to the inhibitory threat of the laboratory situation. Dr. Hall and I were impressed by the issue of the degree of threat. Our group's study,[31] which produced the highest percentage of reference to the laboratory situation, was one of great threat. We put college student volunteers into a hospital dream laboratory while they were also on an unknown drug. Perhaps a threat scale could be constructed for setting, interviewer, method of interview, and so on.

The informal discussion led to Hall telling an amusing story on Domhoff who called him at 3 A.M. announcing that he was starting his nationwide study on patients' unexpected awakenings at night. Hall's answer: "Go to hell!" Further remarks led to the whole issue of trust, whether it be from subject to experimenter or experimenter to experimenter. Psychologists and psychiatrists are not good subjects because of their awe of the dream as a revealing instrument.[27]

The contribution by *Dr. Edith Sheppard* reviews some applications of her *dream scales* to data collected from a different laboratory. This, of course, points up another important methodological consideration in dream research. One type of experimenter bias is eliminated via using dreams collected in another laboratory for another purpose. She also emphasizes the sex of the experimenter vis-à-vis the sex of the subject as an important variable in the experimenter-subject relationship. This was a striking finding in our earlier study on the dreams of the experimental subject[31] and is directly supported by clinical evidence. I would insert this clinical note: if one wishes to mobilize heterosexual problems, it is well that the sex of the therapist and the patient be different.

In another small study from our group, we verified the importance of the sex of the experimenter.[13] Clinically I have felt that such a consideration of the sex of the therapist is more important in terms of the problem to be dealt with, such as frigidity, than other highly complex variables: nature of the patient's relationship to the preoedipal mother, homosexual anxiety in relation to a male, and determinants which are usually given preeminence in considering whether the therapist be of a certain sex. In this respect, the research of Masters and Johnson [19] on sexual problems I think should be highly instructive to all those in the psychiatric field. They intuitively, it seems to me, had each of the members of the therapeutic couple deal with members of the same sex *and* a member of the opposite sex as a way of stimulating rapid mobilization of sexual attitudes and feelings.

It is obvious that the sex of the experimenter not only influences the content of the dream report but, as Sheppard points out, the two longest dream reports in one of her studies were contributed by two subjects in conjunction with an experimenter of the opposite sex. Sheppard's genitality scale clearly showed the stimulation of the heterosexual experimental situation of opposite sex dyads.

Some of her observations on orality scores even make one derive some clinical cues for that particular problem. Thus if the problem is an oral problem such as an obese patient, frequency of interviews (as shown by her rise in orality scores of consecutive-night experimentation) certainly is something to consider. Frequency of interview does not always imply a psychoanalytic relationship, so that there can be five-times-a-week therapy as well as twice-a-week psychoanalysis. This is reminiscent of Alexander's story of seeing a patient in brief psychotherapy for seven years!

The part of Dr. Sheppard's chapter which deals with presleep film stimuli can properly be considered with Dr. Witkin's discussion since it was from his laboratory that Sheppard's data came. In addition to a base-line recording and a suggestion session about raising an arm, significant films were shown

to a group of subjects prior to sleep concerning the birth of a baby, subincision rites, a film travelogue of the Far West, and a monkey-mother eating her dead baby. As we would expect, three subjects had the highest genitality scores after the subincision film but interestingly had higher hostility scores after the presumably neutral suggestion session and film of the Far West. Following the monkey film, the most consistent trend was an elevation of anality scores and an increase in orality scores.

In her investigation of erectile and nonerectile dreams, the most striking finding was the high superego scores for every subject on every nonerectile dream. These nonerectile dreams in addition have higher average scores on hostility and anality than erectile dreams; one would consider this to be a striking verification of the phenomenon of regression. We made a similar observation in our study of the dreams of the depressed [29]: one apparently cannot fornicate and fight at the same time.

She makes the interesting observation of the differences in responses to the different films by college students as compared to medical students. The subincision film elevated the superego scores of college students, whereas the same film elevated the hostility scores of medical students.

Finally Dr. Sheppard points out the periodic fluctuation in the scores of all the scales with the exception of the ego scale, suggesting an endogenously determined fluctuation of emotional factors in dreams. She is, of course, extremely sensitive to the importance of the transference relationship, and one gets the clinical hint with her study and even more with that of Witkin that there is almost a compression of a psychoanalytic relationship within a period of a few nights. Indeed when one considers the number of hours spent with each subject monitoring, explaining, and interviewing, the number of hours involved with each subject starts to approach psychoanalytic psychotherapeutic relationships in terms of total time.

Dr. Fiss makes some delightful comments on the dream researchers. He suggests an identity crisis among dream researchers as evidenced by the presentation of their research

almost exclusively to meetings of their own kind.

He agrees with Dr. Sampson's comments of the importance of ego factors as well as energic factors in the psychology of dreaming. Thus, qualitative factors must take equal status with quantitative considerations and inevitably lead to intensive individual studies of some of the findings in Sheppard's study. But these are not incompatible. And they lead to that bête noire of our field, the whole problem of prediction. Dr. Fiss offers his interesting research about frustrated dream completion as being more significant than dream deprivation. Intensity of content may be increased by dream interruption as the subject accommodates to anticipated interruption.

He also raises the whole question of the influence of successful dreams compared to unsuccessful dreams on waking life, reversing our usual emphasis of the day residue on subsequent dream formation.

Dr. Jones reminds us again that there are two orders of problems involved in dealing with dreams: (1) how to interpret them and (2) how to study them. The first is a method for employing dreams to enhance wakefulness, whereas the second is an investigation of the psychological conditions of sleeping life.

Dr. Jones goes on to apply his method of *epigenetic analysis to dreams*. This is essentially a system derived from Erikson's framework for developmental life conflicts. In the particular example that Dr. Jones chooses to examine, one does get, however, the feeling of a squeezing of the data to fit the theory. A project that we have thought of several times but have not carried out would be very applicable to this problem: to take a number of nights of dreaming with three to five dreams a night and see if an investigator could determine which dreams of a night belong with each other.

Dr. Jones again offers the attractive hypothesis which he put forth in his monograph. That is, dreaming may serve to enhance personality development by way of the primary processing of problematic developmental sequences.

Dr. Ornstein, in his discussion of Dr. Jones's contribution,

challenges the idea that the epigenetic approach of dream analysis is more likely to suggest a connection between dreams and the psychological processes of sleeping life. This would imply a psychology of dreams and dreaming that is independent of current waking experience. The evidence points completely in the opposite direction.

He also challenges the idea of giving up the wish-fulfillment motive of dreaming—especially when the wish is defined metapsychologically as a bit of psychic energy striving for discharge rather than the usual form of a wish for something that can be seen on the strictly psychological level.

Dr. Witkin in his chapter on *influencing dream content*, deals with all the manifold problems which beset the conduct of dream research. He is very attuned to the problem of the untrained technician, the nuances of the experimenter-subject relationship, and the impossibility of the clinician being at the same time a nighttime investigator. He also deals with the difficult problem of the independent rater who approaches some of the data blind. As a background to his approach, he uses the now well-known *presleep-stimulation study* that he conducted with Lewis.[33] Presleep stimulus seems to do more justice to the contribution of this event than Freud's rather derogatory term, *day residue*. French prefers the term *precipitating stimulus*.

Various presleep stimuli may be used: currently popular are films, but the clinician using clinical material even though it is not reproducible, can usually pinpoint a charged interaction preceding the night's dreams. Breger has used group therapy,[6] and our group in Cincinnati reported our use of hypnotically induced conflicts which could be traced through the night's dreaming.[30]

During the course of this extensive investigation, Witkin has accumulated many interesting observations of which I will mention only a few and particularly will I mention those which I think have some implication for clinical work. For example, Dr. Witkin mentions that there is not an infrequent carryover of the impact of the film of one session into the dreams of the

next session. Sometimes he gets the impression that there is a closed system so that return to the laboratory is a provocation to continue the subject's dream life where he had left off the time before. I think this is one of the specific problems we encounter in clinical work. The patient often views the hour with the therapist as a continuation of the previous hour, some of which is certainly to the good; but, at the same time, one gets the impression of two parallel streams of relationship going on next to each other but rarely touching.

Dr. Witkin used the skills of one of the members of Dr. Gottschalk's verbal-rating-scales group, Mrs. Winget, to show that anxiety scores were significantly higher in dreams after charged films than in dreams after neutral ones. Witkin suggests the use of the "précis" as a way of dividing up the dream text, that is, the number of units needed to represent the main event of the dream experience.

Witkin also offers the technique of proceeding stepwise toward the use of ever larger bodies of data. Thus the first step is limited to the dream text; the second step includes the associative inquiry and some personal history, which gives clues into the latent meaning of the dream; and in the third step the personal context is further enlarged to provide more clues.

Witkin is able to make some astute comments about symbolism and imagery since he can be so clear as to the identification of the presleep stimulus. Thus he points out that the bowl-type kitchen sink with faucets symbolizes the female reproductive system (this incidentally is a striking parallel with the dream that Dr. French and I reported in our study). Dr. Witkin also reemphasizes the technique of having the patient draw pictures as Jung once did. This is something clinicians might use more freely since it is a useful clue to dreams which seem obscure and are verbally communicated with great difficulty.

An interesting specific hypothesis Dr. Witkin offers is that anxiety-laden dreams are more likely to draw on the dreamer's childhood experiences than neutral dreams. This would fit the concept that neutral films leave the person freer to deal with

his ongoing affairs and problems in his current life than do the charged films which preempt the dream life and push other preoccupations aside.

Witkin offers some very interesting observations from his well-known studies of differentiation as reflected by field-dependence or independence. A person is field-dependent when he is dominated by the organization of the field as a whole. In contrast, a field-independent style of perceiving sees parts of the field as discrete from the organized background, indicating developed differentiation. Other characteristics are consistent with what one would expect: field-dependent people tend to use global defenses such as denial and repression, whereas field-independent perceivers tend to use specialized defenses such as isolation and intellectualization.

The implication for dream research of these personality types is clear; less-differentiated persons who use repression as a characteristic defense would be less likely to remember their dreams than differentiated persons. Nevertheless, it is our experience that the influence of the interpersonal situation of interviewer-subject or even more so, patient-doctor, is so powerful that the basic personality or organization as described by such global terms as differentiation becomes secondary to the wish to please, to give, to placate, to produce, which are all major stimuli toward dream-remembering. This would be one possible way of explaining why less-differentiated nonrecallers may become good dream recallers and even better dream reporters under the impact of a therapeutic relationship.

More-differentiated persons spend more time in REM sleep; their dreams tend to be more imaginative and perhaps even show more increased compensatory REM time following a period of deprivation. Less-differentiated subjects seem to dream more openly about the laboratory situation and their relationship with the experimenter.

Some observations of the subject-experimenter relationships which are very similar to those of the clinician with his patient are made by Witkin. He also points out as we did in our study [28] that this is not a static relationship but an evolving one

which has a beginning, a middle, and most important of all—as he stresses in his chapter—some aspects of termination and separation. With separation from the experiment, feelings of jealousy are evoked by the displacement by another person. This was reminiscent to me of a situation in which I consecutively saw a husband and then a wife in analysis. As one of the terminal dreams in his therapy, the husband repeatedly dreamt of the birth of his younger sister, a direct reference to his being displaced in the analytic situation.

Dr. Tart noted that Dr. Witkin's study is the most sophisticated study of the variables involved in stimuli to dreams. He used a rather complete illustration (Fig. 3) to show all the variables, both internal and external, impinging on the dream content of the human subject. Says Tart, "Witkin's study has a demand characteristic, too: to dream about the film." This can be contrasted with the hypnotically implanted conflict which Tart has found either to appear clearly or terribly disguised. He reverses the usual paradigm that the laboratory dream is more artificial than the dream in the clinical situation by suggesting the opposite may be true. He also highlights the subjective aspects of the experiment and again emphasizes reliability as preceding validity.

Dr. Cartwright approaches her topic in terms of research strategy. A fundamental approach to examine the functions of something is to remove it and see what happens. This is certainly the essence of the dream-deprivation studies which Dement pioneered.[8,9] She quotes Zimmerman's interesting study[34] which concludes that dreaming occurs as a state of high cerebral arousal in the absence of reality contact, regardless of the stage of sleep at the time. Thus Zimmerman concludes that the REM period and the dream are two independent conditions which usually occur at the same time under natural conditions but which can become dissociated. Dr. Cartwright tries to pull this together as a general theory by observing that there is a striking similarity between the content of Ditran-induced daytime hallucinations and the normal night-

time dreams of the same subjects. This drug is well known as producing a high level of cerebral arousal in the presence of low levels of sensory control.

She is also very alert to the importance of individual differences and uses this sensitivity to make some interesting observations about REM deprivation. For example, some subjects build up REM pressure quickly; others do not. Just as the penile erection cycle can be dissociated from REM time, so can the dreaming experience; when it does, it has the effect of reducing the subsequent amount of REM compensation time. To get back to strategy then, removing REM time cannot be carried out for all people since all dream experience cannot be experimentally eliminated from sleep by that technique.

Dr. Cartwright points out that there are essentially two opposite types of relationships between dreaming and conscious waking behavior: one is a compensatory and the other a continuity relationship. Most of the studies done in this area suggest the continuity relationship, but this is not exclusively the case as shown in our own study[32] in which Miltown, by decreasing peripheral muscle tone, seemed to increase the amount of motility in the subjects' dreams.

Dr. Cartwright ends with a suggestion that children can be trained in the use of dreams so as to give them more natural access to their inner life, an attraction which might compete favorably with the use of hallucinogens. Several years ago, I made a similar suggestion in a speech before the Ohio Psychiatric Association and I was rewarded by being attacked by a television station saying I was recommending doing away with reading, writing, and arithmetic, and recommending the study of dreams for high school students. However, this was the most significant response I had ever gotten in the lay press so that I had to consider that I had touched on something important in some way.

Dr. Beck's discussion of Dr. Cartwright's contribution enlarges upon her description of essentially two divisions of dream theory, compensatory and continuous. He points out that con-

tinuity theory really implies two propositions: The first is that the dream is either continuous with waking life or opposite to it; the second division he calls the "functional" proposition, which can be further divided into three possibilities: (1) dreams serve the function of wish fulfillment; (2) dreams serve the function of solving or trying to solve current emotional problems from waking life; and (3) dreams do not serve any function.

Beck supports the continuity hypothesis from a study of sex offenders whose dreams showed a much higher content regarding unlawful sexual activity than did the dreams of other kinds of convicts. He also found that in eight of ten patients, the themes of daydreams appeared in most or all of the nightdreams.

In terms of the functional hypothesis, he says that he has abandoned the wish-fulfillment theory for a cognitive model. This model represents approaching the dream as an idiosyncratic way of perceiving the world. For example, depressed patients' ideation revolves around deprivation, thwarting, inferiority, and escape.

Dr. Kramer continues with *the manifest dream in psychopathologic states.* He begins by again underscoring the importance of a number of relationships and facets in terms of the dream report and the dream as experienced. In addition, the communication pattern of the patient and the setting in which the dream experience occurs—as well as age, sex, race, socioeconomic class, psychological mindedness, and intelligence—are relevant for dream-content exploration. But these have been notably lacking in the dream literature.

Nevertheless, Dr. Kramer goes on to describe some of the studies that have been carried out. Thus there seems to be general agreement that the *dreams of schizophrenics* are often unrealistic with an affective neutrality; hostility when it appears is directed at the person of the dreamer, and relatively open manifestations of sexuality in the dream are less blatant than in their waking life though slightly more frequent than in the dreams of normal subjects. In regard to the question

raised by Dr. Cartwright, in the dreams of schizophrenics there seems to be no fixed relationship between the dream and waking life. The dream may be continuous with, compensatory for, precede, or lag behind waking life.

As to *depression*, the dream reports of the depressed contain hostility less often than the schizophrenics but more often than normals. Sexuality increases along with clinical improvement. A theme of escape is very common in the dreams of the depressed, and at least one author gives the description of a characteristic "masochistic" dream type.

Patients with *organic brain disease*, in line with a general disinterest in their inner lives, have not had many investigations done of their dreams. A common type of dream related by patients with beginning or frank chronic brain disease is the dream type of "lost resources." In general, the dreams of patients with organic brain disease seem to be brief, simple, stereotyped, circumstantial, and bland.

Dr. Langs chooses to deal with Dr. Kramer's presentation by emphasizing the advantages as well as the disadvantages of doing research with the manifest dream. He makes the cogent observation that some of the mistrust of the classical analyst toward those using the manifest dream for research arose from (1) the *old dream symbolism* book approach and (2) *therapeutically* the interpretations which were most effective arose from the patients' associations and thoughts. But this has led to a confusion between research and treatment, inasmuch as most of those working with the manifest dream were concerned less with treatment and more with psychoanalytic investigative methodology and such issues as reliability, data volume, and data manageability.

The preceding presentations and their discussions have made this a most exciting meeting ground of clinician and experimentalist. Dr. Witkin concluded his contribution by encouraging the clinician to get involved in experimental dream research. That I heartily agree is evident in the work of our group over the last ten years, but at the same time I would also offer the

injunction that many of those involved in experimental dream work also get some clinical experience. There is certainly a two-way traffic between these two areas. From my vantage point, I have been impressed by the difficulties on both sides, but more so with the lack of methodological familiarity with the stuff of interpersonal relationships which cannot help but influence dreaming, dream recall, dream reports, and the organization of data. Many of the studies only rarely signify the sex of the experimenter vis-à-vis the sex of the subject, the specifics of the setting in which the research is taking place, the familiarity of the subjects with the "machinery" of the investigation, and all the many things which contributors to this volume have described as influencing the dream and probably the process of dreaming as well.

From an overall point of view, the clinician has been given some fascinating hints from some of these dream studies about the importance of the sex of the two individuals involved in experimental as well as clinical work for the mobilization of heterosexual problems, and he has learned of the importance of the mobilization of problems of orality based on the frequency of contact. This made us wonder that even intense sitting-up therapy for certain types of regressed patients, as has been described in the literature from long ago, might not be the treatment of choice. That is, seeing somebody six times a week does not mean that he is in analysis but rather that he is being involved in an ongoing relationship in which many of the very early features of human relationships are mobilized as described by the generic term *orality*.

The clinician has further been reminded, and it cannot be too often, of the importance of asking about and going after feelings in dreams. Though we have a genetic theory of mind functioning, it is again not out of place to point out that early memories are probably often mobilized in situations of anxiety in waking as well as sleeping life. Thus the whole problem of regression and coping deserves further focus in the clinical situation as well as in the laboratory investiga-

tion as described in the interesting hypotheses of Witkin and his coworkers.

And then I have been most impressed by the whole issue of style. In a recent conference with George Klein at Princeton at the Center for Advanced Psychoanalytic Studies, he commented to me that the main thing that the experimental laboratories offer to the clinician, in contrast to the many interesting theories which have gone the other way on the street, is the whole idea of cognitive style. In this, he was referring not only to the studies that have been presented here but of course to some of his own studies on style, those of the group at Menninger, and others.

While we are all just beginning to become aware of the transference effects mobilized in this highly charged situation which we have called sleep and dream research, we must also at some point begin to look more closely at the experimenter. In this respect, some of the work in this field is running parallel to the history of development of the psychoanalytic movement. By this I am referring to the recent interest in the last decade in countertransference. At some point, we are going to have to look at some of the fantasies and feelings mobilized in the experimenter when he is monitoring the sleeping subject. Certainly some of our preliminary introspective investigations would point to the issue of the parent-child paradigm as being a useful one in considering this model. Thus sometimes protective maternal or paternal feelings are mobilized in the experimenter, but certainly other instinctual impulses are stimulated—again depending upon the many variables we have listed above. In this respect, again the richness of the legacy of Freud has been both an exciting one for us but also a hindrance. His great emphasis on the oedipal aspect of transference neurosis has often prevented a closer look at preoedipal roots. While the laboratory situation is often considered a dyadic one, we have seen a number of instances in which patients dream of other people in the dream laboratory and dilute this dyadic relationship to a triadic or even a group rela-

tionship as a way of avoiding the intimacy of a two-person relationship. Other subjects will directly dream of the laboratory situation as the most primitive form of dyad, in which the mother-baby model is operative and there may even be reference to nighttime feeding. The immediate small group membership of the experimenter is important to his attitude to the subject. Almost all dream research is now done by teams. Dr. Kramer for a while felt his name was *et al.*, and he has shown by this volume that this is not true. Thus we have, as Dr. Tart showed in Figure 3, a number of influences on the subject; but we must add that there are a number of influences on the experimenter as well. This is similar to the formulation of a sexual relationship as being between two people wherein it has been observed that her mother and father are in the room as well as his mother and father (i.e. as determinants of their sexual attitudes and behavior). We can only say as we do with dream research that this makes the room terribly crowded.

One of the phrases which is most in favor in the psychoanalytic field at the present time is the *therapeutic alliance*. Sabshin and Offer[22] have supplied the term *research alliance* as well. This would imply that establishing trust and confidence, some of the basic qualities of ongoing human relationship which are so necessary in a clinical relationship, are also necessary in an experimental relationship. These are issues which we as scientists often neglect because we are so confident of the ethics and trustworthiness of science, a certitude which our fellow human beings and subjects do not always share so completely. Thus, individual differences are crucial for the amount of anxiety in the experimental situation.

Finally, I would like to suggest that the material dealt with here could be organized around the whole issue of information. This volume could be looked at as being divided into information-gathering (home, laboratory, the ward or dormitory); information-recording (tape recorder, writing down dreams, speaking to an interviewer, calling in over a telephone); information-coding, of which Jones and Hall have given us two

basic approaches (i.e. inductive and deductive types); information-organizing (developmental sequences or material brought from different states of awareness); and, finally, information-use, which essentially can be divided into understanding the dream and using the dream.

Since I am mostly familiar with clinical work, I thought I would draw some parallels between the clinical setting and dream research. Some very fascinating clinical problems can be formulated in terms of what the therapist does with gratuitous information, that is, material coming to his attention which bears on his relationship with the patient and which he cannot use in any way and cannot communicate to his patient. And yet, this cannot but affect his handling of certain of the patient's associations and dreams. Thus, in dealing with certain types of dream content, we find ourselves using information about other dreams or about the patient. There is another problem, even with planned information, e.g., which has been gathered from meetings with the patient's spouse, or his parents, of which the patient has complete knowledge; but how to use this information still remains an extremely significant and difficult task. Similarly, as we have seen, knowledge of the sex of the experimenter and the patient is important, but what does one do with knowledge that the experimenter is sexy?

Even in the analytic relationship, the analyst has certain information from the patient himself of a verbal and nonverbal nature; here the question is one of tact and timing as to when and how he should use this. Are we using all of our material from patient-doctor interactions or interactions of subject and experimenter? Is not how the patient-subject reacts and talks to the experimenter an important presleep stimulus sometimes? For example, a psychologist was sure that a reference by the patient to a five-fingered exercise on the piano referred to his placing a heart electrode on her with his hand. Only he could have known this.

Another issue is that of how the analyst listens—does he listen as a naive believing person, or does he listen with an underlying orientation of skepticism and disbelief? When does

he avoid information that will overload the input and make it useless, such as when the patient goes on and on telling a number of manifest dreams? In addition, he may also be avoiding certain information in order to avoid having his narcissism injured. In one specific example, it was brought forcibly to a therapist's attention that a patient was doing extremely poorly in work, the very area where the patient previously claimed a high level of performance. The therapist realized he had not wanted to see this at all.

The patient may have certain information about the analyst (or, as I am pointing out, the experimenter as well) which may influence the data he will offer to that person. Patients are more and more sophisticated about going to bibliographical references and Who's Who to look up material about therapists or, indeed, any professional they are dealing with. The lay press at one time or another has written up the work of many contributors to this volume.

Perhaps I am responding to the huge amount of information that has been offered here and in this field for the past ten years. As Aserinsky noted in his paper to the Neuberg Society[1] last March:

> It is obviously difficult to measure accurately the voluminous outpouring of any area of literature in the scientific market. This is particularly true for the topic of "dreams," since it is indexed in fields outside of blood and guts biology or medicine. However, a sample of this literary output, obtained by scanning the *Index Medicus*, reveals the remarkable surge of scientific interest in dreams. From 1940 to 1956, there were approximately 100 papers relating to dreams, or an average of about six titles per year. Starting rather precipitously in 1957, there were 29 papers that year, and then the output gradually rose to some 60 papers in the year of 1964, and there is still no sign of having reached the asymptote.
>
> Under the index of "sleep," there were over 1,300 titles from 1953 to 1966. Here, too, the ballooning research effort manifested itself about 1959, and continued to grow until 1965–66, when there were 488 contributions.
>
> Two interesting observations can be made from this bibliographical flood. First, there is confirmation of a fact well

known—namely, that growth curves, whether biochemical or sociological, may have a considerable lag phase. In the spring of 1953, I publicly reported that I had discovered peculiar rapid eye movements occurring in human beings, and that these eye movements were associated with certain concurrent physiological changes, as well as with dream recall. This information was seized by the International News Service and then published throughout the world. Some four to six years elapsed before there was any sizeable increase in sleep research. Perhaps this was due to shyness since, during that latent period, there were several articles in lay magazines which capitalized on the REM discovery with immodest sensationalism. . . .

The second observation may be of some importance to those interested in world or national scientific trends. The number of scientific publications were classified according to the national origin of each journal—not according to the nationality of the author. The tabulation revealed that, with the exception of U.S.S.R. journals, the publications of all the other major contributors, including American-British, French, Italian, German, Swiss, Japanese, and Czechoslovakian, began to increase progressively sometime between 1957 and 1961 to the present. The waves of the REM discovery crossed the oceans to stir up interest in sleep research almost everywhere, except in the Soviet research laboratories. This could not simply be due to an historic Russian disinclination to engage in sleep studies. Certainly Bechtererv and Pavlov had an interest in sleep. Indeed, the U.S.S.R. actually published three times as many papers in 1956, as compared to 1966—a trend quite opposed to the rest of the scientific world. The Russian interest in sleep has been centered upon clinical therapy, but there is no sign that the discovery of rapid eye movement sleep has propelled them to greater research effort. It is doubtful that my survey of the Russian literature is grossly inaccurate, inasmuch as the most current U.S.S.R. journal * I have seen has yielded a review article entitled "Paradoxical Sleep," and it is noteworthy that, of the 59 references, not a single one is Russian.

Yet the Russians do have a certain claim to discovering REM states. Denisova and Figurine, Dr. Snyder tells me, described REM states in infants twenty years ago. One amusing

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* KOSTANDOV, E. A.: Paradoxical sleep. *Zh Vyssh Nerv Deiat Pavlov, 16*: 1098–1109, 1966.

story I must tell here is that Kleitman was waiting impatiently for the "S" edition (therefore about sleep) of the official Soviet encyclopedia to appear. He waited and waited until finally "T" appeared, "S" having been skipped over. Apparently they could not agree on what should be written about Stalin!

Even the pleasure of mastery of a single area of reality which many of us had in initially working in this field has now been somewhat diluted since we are no longer mastering this area as adequately as we once had thought. I am sure that many of those working in sleep and dream research have felt that some of their contributions have not been given sufficient attention because they have not been in the main stream of these studies or have been published in the "wrong" journals. Dement's pleading and Foulkes' bullying have been only partially successful in augmenting our bibliographic files. And all of us will admit that the fat packet of reprints from another lab which previously excited us with curiosity is now regarded with a mixture of alarm and resignation. We also know that we have missed many articles which would have been crucial to our research for the same reason.

Despite these omissions, many of us publish in both clinical and experimental journals because above all we must continue the useful and stimulating transfer of information back and forth between the experimental and clinical areas—with each serving to enrich itself and the other. Potentially, we have thousands of diligent workers called clinicians laboring daily to collect dreams and examine them in detail. Perhaps some day we can tap this data, but at the present most of us feel more confident—just as the physician who does his own physical examinations—in using the dreams collected in our own laboratories. But the opportunity to exchange information is an essential supplement to avoid any parochialism which might be stimulated by working separately in this field. I would like to thank all participants who have contributed so richly to this volume and to congratulate each of them for having made significant contributions to the exchange of in-

formation between clinicians and experimentalists and to the encouragement of that new breed of scientist in this field, the clinician-experimentalist, or experimentalist-clinician, depending on your own identify preference.

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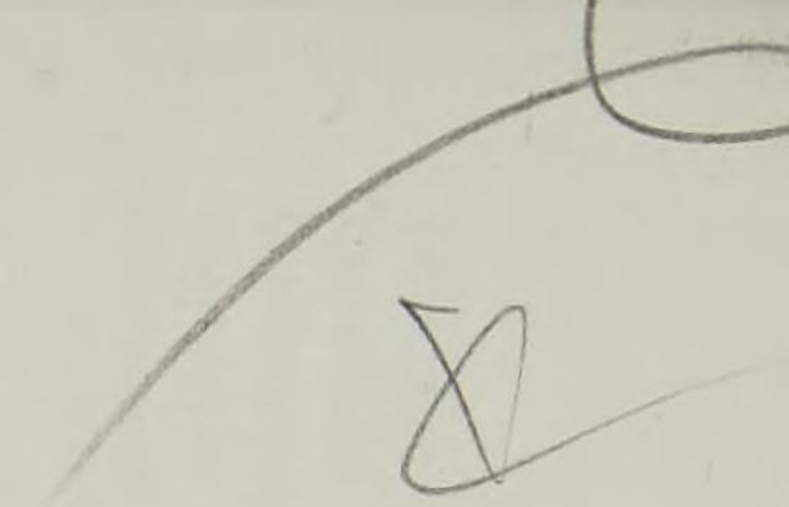
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