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PERSONALITY STRUCTURE AND THE CONTENT OF DREAMS

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by

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ABSTRACT

This research investigated Carl Jung's theories as a means of understanding dreams and their relationship to personality structure. Jung's theories are shown to be consistent with recent theories of dream function and with research findings concerning dreaming sleep. Building on previous research, a general dimension for classifying dream content--degree of archetypality--is discussed, and hypotheses are derived from Jungian theory concerning the relationship of his personality typology and neuroticism to dream recall and manifest dream content. Dream samples gathered from a non-clinical population (students, general public) were subjected to content analysis, and the results provide good support for Jung's model of dreams and personality. The findings are discussed in terms of dream research, recall processes, dream content analysis, personality, and individual adaptation. Jung's theories are integrated with recent models of the neurophysiology of dreaming, and new directions in dream research are suggested, using Jung's model as an integrative paradigm.

ABREGE

Cette recherche évalue les rêves et leur interelation avec la structure de personnalité selon les théories de Carl Jung. D'après cette étude, les théories de Jung se révèlent en accord avec les théories les plus récentes énoncées, et les recherches faites, sur les processus des rêves. A l'aide des recherches antérieures, on a discuté d'une méthode de classification du contenu des rêves en se basant sur le degré d'archétypalité. Les hypothèses découlent de la théorie de Jung qui établit la relation entre sa typologie de la personnalité et névrose avec le souvenir et contenu manifeste des rêves. Cette analyse des rêves provient d'une population non clinique (les étudiants, le grand public en général), et les résultats confirment les théories de Jung concernant les rêves et leur relation avec la personnalité. Ces résultats ont été également discutés en relation avec les recherches faites sur les rêves, les processus du souvenir, l'analyse du contenu des rêves, la personnalité, et le mode d'adaptation de l'individu. Les théories de Jung ont été discutées à l'égard des théories récentes faites sur la neurophysiologie des rêves, et des possibilités pour d'autres recherches ont été signalées.

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PREFACE

Throughout history dreams have played an important part in Man's view of himself and the universe. Dreams have been understood as important messages from the world of gods and demons, as the epiphenomena of physiological processes, or as reflections of the elements and processes of the psyche. The contribution of dreams to knowledge depends on the context within which they are understood. This context: personal, cultural, religious, or scientific, determines both the significance ascribed to dreams and what we can learn from them. It is thus important to choose carefully the framework which will permit the scientific study of the function of dreams, as well as a description of their nature and meaning as phenomena. The paradigm chosen can facilitate the integration of at least three major aspects of dreams: (a) the archetypal world, or symbolic background of existence determined by Man's biological and psychic nature as an evolving being; (b) the neurophysiology of sleep and dreaming; and (c) the organization of personality and personal adaptation in everyday life.

The purpose of this thesis is to investigate Carl Jung's theories as a means of understanding dreams. This involves a two-fold approach: First, demonstrating the compatibility of Jung's theories with modern theories of dream function and with the findings of research on dreaming; second, investigating the relationships between Jung's personality typology and the manifest content of dreams.

In the introduction, theories of the nature and functions of dreams are presented. The rationale for choosing Jung's approach is then developed, followed by a detailed description of Jung's model of the psyche. The discussion of the Jungian personality typology includes consideration of

the relevant measurement instruments. Then the research literature is reviewed, focusing on dream recall and manifest content as related to personality, and on methodological and general issues in dream research. Finally, a general principle for classifying dream content (degree of archetypality) is discussed, followed by the formulation of a series of hypotheses.

The remainder of the thesis describes the procedures used in gathering and analyzing the data, the results obtained and hypotheses verified, and the conclusions drawn from the findings. Degree of archetypality in dreams is discussed in relationship with dream sampling techniques, recall processes, dream content, personality and individual adaptation. Following this, an integration of Jung's theories with the neurophysiology of dreaming is presented, and the contributions of this thesis are summarized in the light of future directions in dream research.

INTRODUCTION

Theories of Dreams--Nature and Function

Dream records have been found dating back to around 5,000 B.C. (Van de Castle, 1971). Here, at the dawn of recorded history in Babylonia and Assyria, we find the earliest accounts of dream interpretation and prophecy from dreams (Hall, 1977). Although particular contexts differed from culture to culture, dreams were almost always interpreted in order to understand their meaning for the individual or the group.

Ancient Theories

The Egyptians understood dreams as messages from the gods, while the Chinese believed the dreamer's inner

soul to be the source of dreams. In Greece, dreams were also messages from or visits to the gods, and the art of dream incubation (a deliberate attempt to induce dreams by sleeping in temples) was widespread in the cult of Aesculapius (Meier, 1966). On the other hand, Aristotle proposed somatic sources for dreams and a causal relationship between dream images and subsequent waking behaviour; and Plato felt that the full force of the passions was revealed in dreams (Das Gupta, 1971). Their views of dreams as related to physical changes, behaviour and temperament stand in direct contrast to the doctrine of divine or demonic origin (Von Grunebaum, 1966). A similar contrast is also apparent among the dreams of primitive groups (cf The Dream in Primitive Cultures, J. S. Lincoln, 1935). Two types of dreams can be distinguished: the ordinary, personal type which reflects the personality conflicts and everyday activities of the dreamer, and the culture pattern type ("big" or archetypal, cf Jung's Collected Works, Volume 9, Part 1, "The Archetypes and the Collective Unconscious," p. 306; Collected Works, Volume 8, "The Structure and Dynamics of the Psyche," pp. 290-291; hereinafter referred to as "CW" with volume number and page numbers) which has special significance for the tribe and reflects the foundations of the culture (Eggan, 1966). Although these culture dreams are developed through tradition and conditioning (Bastide, 1966), as in dream incubation, they also express the mythical patterns of a culture in fantasy. The fantasy world and the external world both have high value in directing the course of life for the primitive, and in dreams he can make contact with psychological realities outside the personal sphere (i.e. the "gods"), which affect his life (Meier, 1966). Big or culture dreams may thus be thought of as expressing those patterns of

experience and aspects of Man's evolutionary heritage which go beyond the bounds of the individual personality, while also influencing emotions, psychological attitudes and ideas (Hallowell, 1966).

Modern Theorists

Although Biblical references to dreams are frequent (Van de Castle, 1971), with the development of Christian thinking, dreams became linked with evil--sex, sin, and the devil--and this devaluation did not reverse until the 19th century (Hall, 1977). As a scientific approach emerged, dreams were related to personality, unacceptable instincts, and a subliminal area of the psyche--the unconscious (Van de Castle, 1971). However it was Freud who reaffirmed the personal meaning of dreams, and the importance of dream interpretation as a means to understanding the unconscious.

Psychoanalytic approaches

In Freud's view (1965, pp. 311ff, 612-619), dreams function to preserve sleep in the face of anxiety-arousing stimuli. These are unacceptable, repressed wishes (usually of a childhood sexual nature) which are threatening to the ego-image, and thus are excluded from consciousness during waking by a censor. This censorship is relaxed during sleep, and the dream work creates a disguised version of the repressed wish and so permits partial discharge of the instinctual forces without arousing anxiety and disturbing sleep. The dream work creates disguised forms of these latent dream thoughts through the processes of condensation, displacement, plastic representation, and secondary revision. But if the disguise is inadequate, or the energy pushing for discharge too strong, the dreamer awakes, and the function of the dream has failed. Since dreams have an intra-psychic

defensive function and conceal their meaning, analysis and free association are necessary to reach the latent meanings behind the manifest dream images.

Although Freud's approach emphasizes the defensive function of dreams, the transformation and expression of drives is also central to his position. Whether dreams conceal or reveal meaning may be a question of nothing more than different attitudes towards a phenomenon which appears to move outside the realms of the rational and the everyday. In any case, Freud emphasized the importance of the more personal aspects of the unconscious and the processes involved in the formation of dream images. Subsequently his work has led to theories with an emphasis on transformation in dreams related to ego synthesis and adaptation (Jones, 1974).

Problem-solving and adaptation are important elements of Adler's theory of dreams (cf Jones, 1974, pp. 78-81). For Adler, dreams express the dreamer's approach to life and are attempts to look ahead to solutions of reality problems. However he thought that the solutions proposed in dreams were inadequate, and largely a form of self-deception. This idea is reminiscent of Freud's censorship-disguise mechanism, and Adler attempted to resolve the inconsistency with the claim that dreams fulfill our need for easy solutions which preserve our style of life.

Ullman (1962) agrees with Adler's theory, except on the point of self-deception; rather he considers dreams to be adaptive contributions to environmental mastery. Drawing on Adler's proposal that dreams involve metaphors which arouse emotions relevant to current situations, Ullman (1962, 1969) has developed a theory of dream function linked with the apparent survival value of periodic arousal

or vigilance during dreaming (cf Snyder, 1966). Vigilance, for the human being, is directed towards physical threat (as in lower forms of life), but also, and more frequently, towards social and psychological threat (Ullman, 1961). Thus dreams become Ullman's visual "metaphors in motion," which are symbolic expressions attempting to integrate the emotional and perceptual responses to present problems with the relevant aspects of past experience. The ultimate function of the dream is the internal reorganization of the dreamer's emotional, perceptual, and attitudinal systems so as to aid adaptation in the waking social world. Relevant information and possibilities not easily accessible to the conscious mind are also emphasized and may facilitate conscious reorientations in waking attitudes and behaviour, if the dream is recalled.

James Hall (1977) sees metaphor as close in meaning to Jung's term "symbol" (i.e. something, for example, an image, which expresses, represents, or formulates the meaning of something--a feeling, a process--unknown or unconscious, cf CW Vol. 5, pp. 473-481), and notes that "metaphor is a statement that (1) binds together by its openness and multiple meanings significant events from the past and present, pointing toward the future, and (2) stimulates an emotional awareness in the dream that is not evoked by prosaic statements." This fits well with Jung's view of the dream as a creative form revealing our relationships and adaptation to both outer reality and inner experience. The dream provides a self-portrait of the state of the psyche, with symbolic or metaphorical images. As with visual metaphors, Jung's dream images can symbolize multiple contents in a single image (cf Freud's process of condensation; Freud, 1965, pp. 312-339), and thereby express previously

unknown combinations and possibilities. In contrast to Freud, Jung stated emphatically that "The 'manifest' dream-picture is the dream itself and contains the whole meaning of the dream. . . . What Freud calls the 'dream-facade' is the dream's obscurity, and this is really only a projection of our own lack of understanding" (CW, Vol. 16, p. 149). The manifest dream has a compensatory adaptive function for Jung and is part of the homeostatic system of the psyche.

Whether one speaks of self-regulation or defensive drive-discharge, dreams are still the responses of the psyche to the demands of external and internal environments. However, compared to Freud's, Jung's approach does focus more on creative adaptation and growth, in that the dream compensates the conscious attitude of the dreamer by presenting material and points of view relevant to the reality of the whole psyche. This aids the restoration of intrapsychic balance when the ego's (the experienced centre of focused consciousness) attitude is inappropriate to outer adaptation and personality growth.

As mentioned previously, Jung distinguished between "little" or everyday dreams and "big" or archetypal dreams. Everyday dreams express concerns of a more personal, subjective nature, whereas archetypal dreams are concerned with problems of universal and collective character, e.g., the developmental demands of the various stages of life (childhood, puberty, young adulthood, middle and old age). Jung's model of the psyche will be presented more fully following brief consideration of recent theories of dreams. For the time being, three points are worthy of emphasis: (a) the view that dreams are part of the process of creative adaptation and growth; (b) the distinction between everyday and archetypal dreams; and (c) the approach relating dreams to both outer reality and inner experience.

Recent approaches

In a comprehensive review of theories of dream function, Dallett (1973b) noted a dominant theme: environmental mastery. This concern has been formulated from three points of view: problem-solving, information processing, and ego consolidation, and dream mentation has been taken to be largely continuous with waking thought. Calvin Hall's (1953) cognitive theory of dreams also assumes a basic continuity of dreams with waking thought on the level of personality organization and ego functioning. In Hall's theory, images express conceptual-emotional systems: the dreamer's conceptions and feelings about the inner world (e.g. self, experiences, impulses, conflicts). This does not imply that the dreamer is necessarily aware of these systems, as they are often subliminal, and as Hall puts it, "Dreams provide excellent material for the analysis of conceptual systems, since they portray unconscious and prototypic conceptions" (Hall, 1953, p. 282). The paradox can be resolved by distinguishing content or theme from organization and expression. For example Altshuler (1966) and Giora and Elam (1974) think that cognition is continuous during sleep, as during waking; however there are differences in the mode of representation and the adaptiveness (or perhaps similarity) to reality. Information processing of pertinent material still occurs in dreams, but the manner and expression of this activity differ from waking cognition and behaviour. The degree of difference may indicate various levels of organized processing, e.g. the previously mentioned everyday versus archetypal distinction.

A comprehensive information processing model has been proposed by Breger (1967) and provides an excellent example of the problem-solving approach to dream function. Breger

stresses the comparison of problem situations with past programmes that have been helpful in dealing with emotional experiences, and in promoting conflict resolution. This involves the internal reorganization of perceived and stored information under the influence of emotional feedback systems, and leads to the assimilation of aroused material. There is a similarity between Breger's formulation and those of Ullman (1969), and French and Whitman (1969) who view dreams as attempts to solve "focal conflicts." Although the emphasis may vary slightly, all these views stress adaptation and relate dreams to external situations and internal personality frameworks.

Breger states that the dream state has several advantages over consciousness in dealing with emotional material (1967, pp. 24-25). These include: (a) easier access to stored material; (b) more fluid associational processes; (c) reduced critical analysis; and (d) a greater variety of ways for manipulating symbols. All these elements have been implicated in creativity, and Dreistadt (1971) gives numerous examples of the creative use of dreams in the fields of literature, science, music, invention, and philosophy. Dreistadt then goes on to develop a general theory of dreams which is a synthesis of the views of Freud, Jung, and Adler, and stresses the use of unconscious material in new creations and preparations for the future. A more specific list of dream functions is provided in an interesting review by Miller (1975). He lists no less than seven functions: (a) assimilation of anxiety; (b) gratification of impulses; (c) catharsis; (d) synthesis; (e) mastery; (f) future oriented rehearsal; (g) education and creativity. Given the advantages and unique characteristics of dream processing, such lists could most certainly be extended.

However the important point is that dreams provide valuable contributions to creative activities and adaptation.

Theories of dream function based on physiological and neurological considerations also show an emphasis on information processing, adaptation, and growth. Hernandez-Peon (1966) has proposed that the motivational or emotional systems (limbic structures) are active during sleep and shape our dreams, i.e. neural discharges carrying stored information form the manifest content of dreams, which is organized by limbic structure activity. This permits unconscious information to be processed and integrated into memory traces available to consciousness, and thus to be used in adaptive waking behaviour. Jouvet (1965) felt that dreaming might be necessary for the consolidation of new behaviour, i.e. for protein synthesis in memory processes. In an information processing variation on this theme, Shapiro (1967) saw dreaming as part of a process by which a map of external reality is approximated within the nervous system through experience. In this way, perceptions, emotions, and attitudes were altered during dreaming when the reduction of patterned sensory input was compensated for by programmed processing of stored information (cf the theory of cortical homeostasis, Ephron and Carrington, 1966, which suggests that REM sleep serves the function of periodically increasing cortical "tonus," thus maintaining normal waking functions by meeting a need for endogenous stimulation in the central nervous system during sleep). Shapiro's emphasis on the role of experience in dreaming is similar to the views of Lerner (1967). She claimed that personality organization which depends on a coherent body image is maintained by kinesthetic fantasy in dreams.

The above views are well summarized by Valatx (1973).

He noted that brain stem structures appear to be responsible for the triggering and maintenance of paradoxical or rapid-eye-movement (REM) sleep. Dreams, although not restricted to periods of REM sleep, are likely to be experiences accompanying and reflecting processes influencing the hypothalamus and the cerebral cortex. And, for Valatx, these processes are those involved in the maturation and organization of the central nervous system (cf also Snyder, 1966, and Berger, 1967) and in memory consolidation.

Common Threads and an Integrative Framework

Having reviewed ancient and modern theories of dreams, it remains to note the common threads joining them and to consider the different types of evidence upon which these theories are based. Three main themes have emerged from this review concerning the nature and function of dreams: (a) Dreams represent and are related to both outer reality and inner experience; (b) Dreams express both personal, subjective phenomena (everyday) and collective supra-personal phenomena (archetypal); and (c) Dreams are part of the process of creative adaptation and growth.

With respect to the basis for ancient and primitive views of dreams, these were developed largely through superstitions, cultural and religious beliefs (cf Woods and Greenhouse, 1974, p. 109ff.), which related dreams to demons, souls, and the supernatural world of the gods. The Greek philosophers (e.g. Socrates, Plato, and Aristotle) studied their own dreams and developed more rational explanations related to emotions and bodily processes (Woods and Greenhouse, 1974, pp. 166-171). Freud and Jung based their theories on an analysis of their own dreams and on therapeutic case studies (see especially Jung's "Individual Dream Symbolism in Relation to Alchemy," CW 12, pp. 39-223),

and related dreams to the structure and dynamics of the personality and the psyche. Recent theorists for the most part have translated previous formulations into modern terminology, and developed dream theories relating to research studies on information processing, neurophysiology, and the biology of sleep and dreaming (cf. Woods and Greenhouse, 1974, p. 271ff.) However, at present, with so many diverse points of view in existence, we need a comprehensive framework to integrate the study of dreams. The framework must permit us to describe and classify dream content and experience and to operationalize terms and generate testable hypotheses. It must furthermore take account of the relationship between dreams and personality structure, and facilitate a rapprochement between psychological and neurophysiological theories of dreams and dreaming.

So why choose Jung's theory? First of all, his concepts were developed from clinical material and provide excellent descriptions of dream contents and dream experiences. His theory also includes a general principle of dream function which is compatible with most of those mentioned above. Second, his emphasis on manifest content is consistent with the modern empirical approach to dream content. And as will be discussed in detail in the next section, he developed a coherent theory of personality which has been successfully operationalized and appears to be relevant to the study of dreams. Third, as James Hall so aptly put it, "the unique feature of Jung's dream theory is its ability to encompass both the archetypal function of dreaming and the personal adaptation or change that is visible in the everyday world" (1977, p. 45). Finally, although I do not wish to over-emphasize psycho-physiological parallels, Jung's model of the psyche meshes easily with neurophysiological and biological views of dreams (cf. pp. 32-

33). These features constitute the open-ended and flexible characteristics which will permit future development and synthesis in the study of dreams.

Yet, despite its apparent integrative power, Jung's theory is relatively untested in research. This is due partly to the historical dominance of Freud's dream theory, and partly to the abstract nature of Jung's writings, which has made them difficult for others to interpret. In any case, it is now necessary and appropriate to present a concise description of Jung's model of the psyche and dreams.

Jung's Model of the Psyche and Dreams

Structure and Dynamics

In Jung's view, the psyche is composed of three major areas or layers. These are consciousness, the personal unconscious, and the collective unconscious or objective psyche. The psyche can be thought of as a sphere, and the collective unconscious or objective psyche is the core out of which the other layers of the sphere develop. To Jung this core represented "the mighty deposit of ancestral experience accumulated over millions of years, the echo of prehistoric happenings to which each century adds an infinitessimally small amount of variation and differentiation . . . a deposit of world processes embedded in the structure of the brain and the sympathetic nervous system" (CW Vol. 8, p. 376). On the surface of the sphere lies the field of consciousness with a focal point or node: the ego or "complex of identity" (cf. Whitmont, 1969). In order to facilitate social interactions the ego adopts roles in the outer world. These roles make up what Jung called the persona. Below the surface of the sphere, consciousness shades into the personal unconscious which, as Jung put it,

"includes all those psychic contents which have been forgotten during the course of the individual's life. Traces of them are still preserved in the unconscious, even if all conscious memory of them has been lost. In addition, it contains all subliminal impressions or perceptions which have too little energy to reach consciousness. To these we must add unconscious combinations of ideas that are still too feeble and too indistinct to cross over the threshold. Finally the personal unconscious contains all psychic contents that are incompatible with the conscious attitude" (CW Vol. 8, p. 310). These incompatible characteristics are grouped together in an alter-ego image or, as Jung termed it, the shadow complex. (Jung used terms such as "shadow" as descriptive categories in order to convey the qualitative experience of the emotions and images associated with various psychic contents. Such terms indicate that aspects of the psyche are often experienced as personified images or partial personalities; cf. Hillman, 1975, p. 22.)

Below the personal unconscious are the archetypes of the collective unconscious, which form the core of the more personal levels. Of the archetypes, Jung has said "they are the ruling powers, the gods, images of the dominant laws and principles, and of typical, regularly occurring events in the soul's cycle of experience" (CW Vol. 7, p. 95). This rather poetic quote shows the similarity between Jung's earlier formulations and the views of the ancients and primitive peoples (cf Woods and Greenhouse, 1974, pp. 109-161).

Jung saw "archetypal images" as the expression in imagery of instinctive patterns of behaviour. For him the psyche was composed essentially of fantasy images which are structured by and flow in patterns directed by the archetypes. In modern terms, the archetypes are part of the

tendency to structure experience in certain ways--they act somewhat like magnetic fields in determining the organization and relationships of images, emotions, and behaviours. The close relationship between the archetypes and the instincts was expressed by Jung as follows: "To the extent that the archetypes intervene in the shaping of conscious contents by regulating, modifying, and motivating them, they act like the instincts. It is therefore very natural to suppose that these factors are connected with the instincts and to inquire whether the typical situational patterns which these collective form-principles apparently represent are not in the end identical with the instinctual patterns, namely, with the patterns of behaviour" (CW Vol. 8, p. 205). Jung went on to clarify this concept and stated that "what we mean by 'archetype' is in itself irrepresentable, but has effects which make visualization of it possible, namely, the archetypal images and ideas. We meet with a similar situation in physics: there the smallest particles are themselves irrepresentable but have effects from the nature of which we can build up a model. The archetypal image, the motif or mythologem, is a construction of this kind" (CW Vol. 8, p. 214).

Thus the archetypes are the "necessary a priori determinants of all psychic processes. Just as his instincts compel man to a specifically human mode of existence, so the archetypes force his way of perception and apprehension into specifically human patterns. The instincts and the archetypes together form the 'collective unconscious'" (CW Vol. 8, pp. 133-134). Ultimately there is little difference between Jung's formulations and what Breger (1967, p. 11) called "the direction given to thought and action by the structure or organization of the nervous system."

Archetypal images (and their associated affects) are the forms in which the archetypes may express themselves (particularly in the spontaneous activity of the unconscious --dreams), and while their structure and dynamism are archetypal, their actual content is formed by personal, family, and cultural experiences. In a man's dreams and fantasies there often appears a feminine figure which Jung called the "anima"; for a woman, the corresponding masculine figure was named the "animus." In James Hall's words, "it is convenient to think of the anima and animus images as being partially formed (as is the shadow) by dissociation of elements that are considered by society to be contrary to the assigned sexual identity of the ego" (1977, p. 115). Although the anima and the animus are of great importance in Jung's system, it is the central archetype representing the totality of the psyche which reigns supreme. This archetype, known as the "Self," forms the core of the ego and is experienced by the ego as the centre of the psyche. It is often represented in dreams by mandalas, and is crucial to the process of personality development Jung called "individuation."

Frey-Rohn (1976) noted the fundamental importance of the archetypes in this process when she observed that "Jung showed that the archetype was not only the focal point of ancient pathways, but also the center from which new creative endeavours emanated. . . . The molding and reshaping character of the archetype |is| primarily manifested in the tendency toward creative metamorphosis of earlier imprints" (pp. 95-96). She also emphasized the capacity of archetypal images to transform the conscious ego attitude, especially during times of individual crisis or collective threat.

Neumann (1954) has provided an excellent outline of

the archetypal stages in the development and transformation of ego consciousness. The fundamental point here is that the psyche is a self-differentiating structure which gradually forms the ego as the focal point of consciousness (cf. Whitmont, 1969, p. 49). The separation of the system of the conscious and the unconscious is activated by the archetypes and is accomplished through the changing ego-Self relationship. This relationship focuses on the synthetic function of the ego (Neumann, 1954, p. 356ff.), and the fragmentation of the archetypes for purposes of assimilation into consciousness (Neumann, 1954, p. 320ff.) Three stages have been outlined as a recurring cycle in the evolution of ego consciousness (cf. Whitmont, 1969, p. 266, and Edinger, 1972, p. 186): (a) the separation of the original unconscious ego-Self identity; (b) the assertion of the ego as the centre of power resulting in the ego-Self alienation or estrangement; and (c) the reuniting of the ego with the Self through a conscious ego-Self relationship (the ego-Self axis). Thus in individuation, two processes occur simultaneously, the progressive ego-Self separation and the increasing emergence of the ego-Self axis into consciousness (Edinger, 1972, pp. 5-7).

Individuation is most easily observed in the affects and images of dreams, which reflect the spontaneous activity of the unconscious. As Edinger has noted, "dreams are expressions of the ego-Self axis" (1972, p. 125), i.e. the relation of the ego to the unconscious. It is precisely the affective power and the symbolic and metaphoric meaning of these strange dream images which relate the ego to the archetypes and transform the personality (cf. Edinger, 1972, p. 130).

As mentioned previously, Jung felt that the dream was

"a spontaneous self-portrayal, in symbolic form, of the actual situation in the unconscious" (CW Vol. 8, p. 263). However, the material is not limited to unconscious sources, in that "dreams are not entirely cut off from the continuity of consciousness, for in almost every dream certain details can be found which have their origin in the impressions, thoughts, and moods of the preceding day or days" (CW Vol. 8, pp. 237-238). This is similar to Freud's concept of the day residue (1965, p. 197) in dream content. However, as Jung goes on to note, "the combination of ideas in dreams is essentially fantastic; they are linked together in a sequence which is as a rule quite foreign to our 'reality thinking,' and in striking contrast to the logical sequence of ideas which we consider to be a special characteristic of conscious mental processes" (CW Vol. 8, p. 238). The fantastic character of dream material has been discussed above in relation to symbols, metaphors, and modes of processing. It will suffice to note here that Jung differentiated dream experiences as stemming from the personal unconscious or the collective unconscious, with the latter being more remote from everyday experience and more affectively charged.

For Jung, dreams are part of the ongoing process by which the ego and the unconscious communicate, so as to balance and adjust conscious attitudes and behaviour. When the conscious and unconscious attitudes agree, dream content may coincide with conscious attitudes. If the two are slightly discrepant, dreams may emphasize slight alterations and information relevant to the changing of the conscious attitude. If the conscious approach is too one-sided or maladaptive, then there is a strong possibility that vivid and strongly contrasting material will appear in dreams which

may facilitate reorientation through powerful emotional experiences. This process of compensation is highly individualized, as it is a function of the complex interplay between personality and environment.

According to Jung, dream interpretation, while not always necessary, can enhance adaptation and growth. Dream content is interpreted within the context of the dreamer's attitudes and life situation, and involves different levels of a technique Jung called "amplification." This consists of obtaining the dreamer's personal associations to the dream images, but unlike the Freudian technique, never straying too far from the original image. Other levels of amplification such as searching for cultural, religious, or mythological parallels may also be used, but only when necessary to an understanding of the meaning of the dream. The dream may also be interpreted in two ways, which Jung referred to as the objective and the subjective levels. In the objective level, dream content represents external situations, people, and objects; in the subjective level, all aspects of the dream are seen as personified parts of the dreamer's psyche. In this way dreams are related to both the external environment and the individual's personality structure.

Personality Typology

Jung's theory of personality defines both an individual's basic orientation to the environment, and the preferred methods of perceiving and judging experience. The typology has three major dimensions composed of pairs of opposites: extraversion-introversion (orientations or attitudes); sensation-intuition (irrational perceptual functions); and thinking-feeling (rational judgmental functions).

Extraversion and introversion mean directing interest and attention towards people and things in the outer world in the first case, and towards the inner processes of thought and imagery in the latter. The extravert orients consciousness to the values, meanings, and standards of the external world, while the introvert orients consciousness to subjective or internal representations of experience. (For a more detailed theoretical description see Jung's "Psychological Types," CW Vol. 6; and particularly K. J. Shapiro's "A critique of introversion," 1972.)

For both extraverts and introverts consciousness can occur in four functional modes. Jung describes these modes as follows: "Sensation establishes what is actually present, thinking enables us to recognize its meaning, feeling tells us its value, and intuition points to possibilities as to whence it came and whither it is going in a given situation" (CW Vol. 6, p. 540). Sensing and intuiting are opposite ways of obtaining information about the world. Sensing involves perceiving the presence and qualities of facts directly through the senses, while intuiting involves the unconscious or subliminal recognition of relationships and possibilities in events and situations. Thinking and feeling are opposite ways of organizing and judging experience: thinking on the basis of impersonal analysis and logical meaning, and feeling on the basis of personal values, likes, and dislikes.

Carlson and Levy (1973) have provided an excellent synopsis of Jung's type theory:

> Through innate predisposition and environmental opportunity, one of each pair is the more "natural" or developed in conscious functioning. A person characteristically directs his cognitive functioning either toward the outer world (extraversion) or toward subjective experience (introversion), and comes to emphasize one of the judging functions (thinking or feeling) and one of the perceptual

> functions (sensation or intuition) as his preferred, more characteristic mode of dealing with experience. The "dominant" function, whether judging or perceptual, is supported by an "auxiliary" function from the other domain. Importantly, however, every individual is capable of the alternate modes of experience. The attitude and functions developed and differentiated in conscious experience are paralleled by their unconscious, relatively undifferentiated counterparts. Ideally, these latter serve as balancing forces in the personality: however such submerged, relatively primitive features may also intrude as disturbing experiences or immature behaviour. The full complexity of the theory--the organization of attitudes and functions at different levels of consciousness--must be emphasized, since most academic accounts of the typology have presented a misleading oversimplification. Descriptively, the typology yields sixteen type categories, each based upon a particular combination of a dominant attitude, and a dominant and an auxiliary function which characterize the individual's consciously developed preferences. (p. 561)

Neurosis

Jung saw neurosis as a dissociation of the conscious and the unconscious: a disunity within the individual in which the ego has difficulty integrating the values and aspects of the total personality. He said "the motive forces at the back of neurosis come from all sorts of congenital characteristics and environmental influences, which together build up an attitude which makes it impossible for . . . the neurotic . . . to lead a life in which the instincts are satisfied" (CW Vol. 5, p. 139).

Since the objective psyche functions independently of the ego's intentions, the ego must maintain an adequate relationship to the unconscious in order to function in a healthy manner. If ego consciousness refuses or cannot be concerned with the non-ego contents of the psyche, then those

complexes not taken seriously and granted a role in conscious functioning interfere with the ego's function in an unadapted, primitive fashion (Whitmont, 1969, p. 51). In severe cases when the ego's reality adaptation is shattered and bizarre imagery floods consciousness, we have psychosis. Neurosis, however, involves the tendency to a one-sided development in consciousness which disturbs or interferes with the process of reality adaptation, but does not completely destroy it. If the ego attempts to understand the archetypal forces and the demands of the complexes, then it is possible for the ego-Self connection to be re-established, and the psychic split healed.

For the introvert, the typical neurosis is psychasthenia (anxiety neurosis), characterized by extreme sensitivity and chronic exhaustion. The typical neurosis for the extravert is hysteria characterized by high activity levels, physical complaints, and emotional lability (CW Vol. 3, pp. 71-72; and CW Vol. 6, pp. 336-337, 379).

Personality Assessment

The Myers-Briggs Type Indicator

A number of self-report techniques have been developed for measuring Jung's psychological types. Two standardized personality inventories, the Myers-Briggs Type Indicator (Myers, 1962) and the Gray-Wheelwright (Wheelwright and Buehler, 1964) were developed independently and reflect the same basic constructs (cf. Myers, 1962, p. 21; Stricker and Ross, 1964b; and Bradway, 1964). The Gray-Wheelwright was developed by Jungian analysts, but the Myers-Briggs Type Indicator (MBTI) has had more extensive use, and a comprehensive review of its psychometric properties is available (cf. Myers, 1962; and Carlyn, 1977).

The MBTI is a forced-choice self-report inventory which provides measures of the preference strengths for extraversion or introversion (EI), sensation or intuition (SN), thinking or feeling (TF), and a fourth variable, judging or perceiving (JP), which indicates the dominant function of the individual. Preference strength scores are derived from the difference between the weighted raw scores of each of the pairs of opposites. Provisions are made for obtaining two kinds of measures: continuous scores for EI, SN, TF, and JP, and patterns of type categories (16 or 2^4 basic types). Myers (1962) provides evidence for the dichotomous nature of the Jungian dimensions by citing discontinuous regressions of the type variables on other variables. However Stricker and Ross (1964a) have challenged the structural properties attributed to the typology on psychometric grounds. Webb (1964) analyzed the scoring procedures of the MBTI and concluded "when difference scores are reduced to type classifications, there is a loss of reliability, intercorrelation, and correlation with other variables" (p. 781). For the purposes of this research, both type categories and continuous scores will be used, but with an emphasis on the latter, which provide more information.

The MBTI's psychometric properties have been investigated (cf. Carlyn, 1977), and the instrument offers adequate split-half and test-retest reliabilities (.69 to .84, and .48 to .83 respectively) and scale independence (Stricker and Ross, 1963). However the JP scale is moderately correlated with SN (.09 to .48) and somewhat less so with TF (-.06 to .29), and the stability of scores is probably affected by the degree of preference development (cf. Myers, 1962, pp. 19, 72, 73) which may be a function of occupation or age. Evidence for the content and predictive validity of

the indicator has been provided by research on type classification (Bradway, 1964), and MBTI relationships with personality, ability, and interests (Myers, 1962; Stricker and Ross, 1964b; and Ross, 1966).

The MBTI appears to have moderate predictive ability with respect to choice of major and success in college (Carlyn, 1977, p. 468). As well, type differences are related to job turnover, e.g. a significantly higher turnover of intuitive as compared to sensing workers in utility jobs, independent of intelligence (Myers, 1962, pp. 28-31). Interestingly stronger preferences--more extreme scores in either direction--on EI and TF are related to higher IQ and vocabulary test scores. In the case of SN, intuition alone is related to higher IQ, vocabulary test scores, scholastic achievement, and creativity (Myers, 1962).

Evidence for the construct validity of the MBTI has been provided by studies on educational interests, values, and type distributions in various occupations (Carlyn, 1977). For example, Ross (1966) used factor analysis to relate the MBTI to a variety of ability and interest tests and the Personality Research Inventory. He found that the MBTI scales were linked with different abilities, interests, and personality characteristics, and concluded that the scales probably also reflected some surface characteristics other than the type differences.

This research as well as that of Myers (1962), Webb (1964), and Stricker and Ross (1964b) has been well summarized by Carlyn (1977, pp. 469-471). She notes that extraverts tend to be talkative, gregarious, competitive, and impulsive, with needs for dominance, exhibition, and affiliation, and a preference for vocations involving people contact. Introverts are reflective, self-sufficient, and

more solitary than extraverts, and enjoy working alone in technical-scientific professions. Sensing types have a practical, factual orientation, and a strong need for order; whereas intuitives have aesthetic and theoretical interests, a tolerance for complexity and change, a strong need for autonomy, and are often seen as imaginative and creative. Thinking types are objective, analytical, and logical, and have strong needs for order, autonomy, dominance, achievement, and endurance; whereas feeling types are interested in human values and inter-personal relationships, have strong needs for nurturance and affiliation, and are attracted to helping professions. Judging types have a strong need for order, prefer schedules, and are often seen as responsible and industrious; perceptive types, on the other hand, are spontaneous, flexible and open-minded, and usually score higher on measures of impulsiveness and need for autonomy than judging types.

Overall the EI, SN, and TF scales of the MBTI are relatively independent of each other and seem to measure personality dimensions quite similar to those postulated by Jung.

A number of other investigators have attempted to operationalize Jung's typology. Gorlow, Simonson, and Krauss (1966) factor analyzed Q-sorts of self-regarding propositions derived from Jung's type descriptions and found good support for the typology. They were able to identify five of the eight Jungian types using a factor analysis of a Q-sort containing 100 statements (approximately 12 for each type) constructed from Jung's type descriptions. The absence of three of the Jungian types was probably due to the nature of the sample of 99 students (i.e. type distribution, strength of preferences, and degree of type development) and the

content validity of the self-regarding statements. Wozny and Meier (1976) applied Q-factor analysis to the Gray-Wheelwright responses of 22 Jungian analysts and derived eight empirical types from the response clusters. They also noted the difficulty of constructing scales which would measure the pure Jungian concepts, in that extraversion-introversion appears to have social and thinking dimensions, and thinking-feeling appears to refer to introverted thinking-extraverted feeling. Although the use of Q-sort methodology to determine empirical person clusters within the Jungian system warrants further research, it is very time-consuming. Thus, for practical and psychometric considerations, the MBTI appears to be the best choice for use in this research.

The Eysenck Personality Inventory

The Eysenck Personality Inventory (EPI), (Eysenck, H. J., and Eysenck, S. B. G., 1968) provides measures of extraversion and neuroticism. The EPI is a yes-no inventory of self-descriptive statements which has split-half and test-retest reliabilities of .85 to .93 and .80 to .97 respectively (Eysenck and Eysenck, 1968).

Eysenck defines extraversion and neuroticism as higher order factors composed of a number of primary traits. That extraversion and neuroticism are multidimensional constructs is quite evident (cf. Howarth and Browne, 1972, and Golin, Herron, Lakota, and Reineck, 1967). The particular configuration of traits which define extraversion is, however, still a matter of dispute (cf. Eysenck, 1977; and Guilford, 1977).

Guilford has proposed on the basis of factor analytic studies that the second-order variable extraversion rests on two first-order factors: impulsiveness (as opposed to seriousness and self-restraint) and thoughtfulness. Eysenck

on the other hand claims that extraversion is composed largely of the two factors impulsiveness and sociability. For the purposes of this research, the resolution of the above dispute is not crucial, as Jung's conception of extraversion includes impulsiveness, thoughtfulness, and sociability (cf. pp. 28-30).

Eysenck's definition of extraversion also encompasses a cluster of traits including activity, liveliness, and excitability. Physiologically, the distinction between introvert and extravert is based on differences in the speed and balance of excitation and inhibition in the central nervous system, with introverts showing strong excitation and weak inhibition, and extraverts vice-versa. Numerous experimental studies have supported this contention and shown that introverts condition more easily, have lower sensory thresholds, show better performance on vigilance tasks in isolation, have longer after-images, preserve visual fixation better, and have greater tolerance for sensory deprivation but less tolerance for pain (Eysenck, 1967). Although the experimental basis for Eysenck's conception of extraversion contrasts strongly with the phenomenological approach of Jung, both emphasize extraversion as the constitutional tendency towards outgoing, uninhibited, impulsive, and sociable behaviour, and introversion as the opposing tendency.

Ample evidence for the similarities of their views can be found by comparing the descriptions in the manual for the EPI (1968, p. 6) and Jung's 1936 paper entitled "Psychological typology" (CW Vol. 6, pp. 549-553).

Eysenck's description is as follows:

> Extraversion-Introversion. High E scores are indicative of extraversion. High scoring indi-

viduals tend to be outgoing, impulsive and uninhibited, having many social contacts and frequently taking part in group activities. The typical extravert is sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change. He is carefree, easy-going, optimistic, and likes to "laugh and be merry." He prefers to keep moving and doing things, tends to be aggressive and to lose his temper quickly. His feelings are not kept under tight control, and he is not always a reliable person.

The typical introvert is a quiet, retiring sort of person, introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, "looks before he leaps," and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards.

Compare the above with Jung's description of the extravert and the introvert:

Extraversion is characterized by interest in the external object, responsiveness, and a ready acceptance of external happenings, a desire to influence and be influenced by events, a need to join in and get "with it," the capacity to endure bustle and noise of every kind, and actually find them enjoyable, constant attention to the surrounding world, the cultivation of friends and acquaintances, none too carefully selected, and finally by the great importance attached to the figure one cuts, and hence by a strong tendency to make a show of oneself. . . . The disinclination to submit his

own motives to critical examination is very pronounced. He has no secrets he has not long since shared with others. Should something unmentionable nevertheless befall him, he prefers to forget it. Anything that might tarnish the parade of optimism and positivism is avoided. Whatever he thinks, intends, and does, is displayed with conviction and warmth. The psychic life of this type of person is enacted, as it were, outside himself, in the environment. He lives in and through others; all self-communings give him the creeps.

The introvert is not forthcoming, he is as though in continual retreat before the object. He holds aloof from external happenings, does not join in, has a distinct dislike of society as soon as he finds himself among too many people. In a large gathering he feels lonely and lost. The more crowded it is, the greater becomes his resistance. He is not in the least "with it," and has no love of enthusiastic get-togethers. He is not a good mixer. What he does, he does in his own way, barricading himself against influences from outside. . . . Under normal conditions he is pessimistic and worried, because the world and human beings are not in the least good, but crush him, so he never feels accepted and taken to their bosom. Yet he himself does not accept the world either, at any rate not outright, for everything has first to be judged by his own critical standards.

For him self-communings are a pleasure. His own world is a safe harbour, a carefully tended and walled-in garden, closed to the public and hidden from prying eyes. His own company is the best. He feels at home in his world, where the only changes are made by himself. His best work is done with his own resources, on his own initiative and in his own way.

His relations with other people become warm only when safety is guaranteed, and when he can lay aside his defensive distrust. All too often he cannot, and consequently the number of friends and acquaintances is very restricted. Thus the psychic life of this type is played out wholly within.

His retreat into himself is not a final renunciation of the world, but a search for quietude,

> where alone it is possible for him to make his contribution to the life of the community.

Finally, extraversion as measured by the EPI correlates positively with dominance, sociability, social presence, and self-acceptance, and negatively with self-control as measured by the California Psychological Inventory (Eysenck and Eysenck, 1968, p. 19). These findings are in agreement with those concerning extraversion as measured by the MBTI, and in fact, the correlation between the two scales is fairly substantial: Spearman's r = .64 (Howarth, 1962).

Neuroticism has been termed degree of emotionality, stability, ego-strength, or anxiety (Eysenck, 1967, p. 36). Eysenck defines this construct as emotional lability or arousability of the autonomic nervous system and a low tolerance for stress (especially in conflict situations), and associates neuroticism with anxiety and somatic complaints (Eysenck and Eysenck, 1968, p. 6). He also notes that high neurotics show both high drive levels in threat-avoidance situations and rigid sequences of behaviour, and further proposes that emotional over-reactivity may inhibit new learning and maintain faulty habit patterns. These observations, although presented from a different point of view, are very similar to Jung's. In fact Eysenck and Eysenck (1968, p. 7) present evidence supporting Jung's contention that dysthymic or anxiety neurotics are introverted while hysterical neurotics are more extraverted. As well, Knapp (1965) found neuroticism (as measured by the EPI) to be negatively correlated with measures of self-actualization (as measured by the Personal Orientation Inventory). Golin, Herron, Lakata, and Reineck (1967) found strong positive correlations with emotionality, anxiety, and defensiveness as measured by numerous inventories, and a negative correlation with ego-strength. The above findings

support the construct validity of neuroticism and the use of the EPI as a fair measure of neurosis as defined within the Jungian framework.

Dream Research

In the last two decades there have been great advances in understanding the physiology of sleep, and many good reviews on the physiology and neurology of sleep and dreaming are now available (Dement, 1965; Jouvet, 1965; Hernandez-Peon, 1966; Shapiro, 1967; Snyder, 1969; and Van de Castle, 1971). However the complexity and subjectivity of dreams has led to a slower development in the study of their psychology and phenomenology. This situation is now changing, largely due to the availability of empirical approaches for measuring and quantifying the manifest content of dreams (cf Hall and Van de Castle, 1966). Recent trends point to the eventual marriage of "Dream Psychology and the New Biology of Dreaming" (Kramer et al., 1969). Following a brief review of the characteristics and mechanisms of dreaming, this section will review current research on dream recall, manifest content, and individual differences.

Characteristics of Dreaming

Dreaming is an aspect of a distinctive biological state which occurs in nearly all mammals and may be a circadian rhythm, independent of sleep (Snyder, 1969; Giora, 1972). REM sleep, which involves intense neuronal activity similar to an alert waking state, is triggered by and originates in the pontine brain stem (phylogenetically the oldest part of the brain). It is characterized by tonic patterns of EEG, phasic patterns of brain activity, e.g. pontine-geniculate-occipital spikes (cf. Jouvet's research on cats, 1965) and a loss of muscle tonus.

Dreaming occurs in each of the numerous REM periods during sleep and in fact, reports of mentation elicited from non-REM sleep are also common. Non-REM mentation, however, is normally more poorly recalled, more like thinking (i.e. conceptual as opposed to perceptual), more plausible, less emotional, less vivid, and in general, closer to waking thought (Dement, 1972). Hauri and Van de Castle (1973) investigated psychophysiological parallels of dreams and found heart rate related to dream emotionality and intensity for both REM and non-REM awakenings. It appears that the percentage of dreaming ascribed to REM and non-REM is extermely sensitive to the criteria used in defining a dream (e.g. reports of thoughts versus a detailed drama), and that the different levels of thought-like and dream-like content occur in both REM and non-REM sleep. This point is relevant to the proposal that there is a need to complete interrupted dreams (Fiss, Ellman, and Klein, 1969) and to the finding in REM deprivation studies of large individual differences in compensatory REM rebound (Nakazawa, Kotorii, Kotorii, Tachibana, and Nakano, 1975). Van de Castle (1971) suggested that it is the deprivation of phasic events (not tonic states) which explains the emotional and behavioural disturbances sometimes observed following REM deprivation. Since phasic events also occur during non-REM sleep (albeit less often and less densely than during REM sleep), it is possible, given individual differences, that they may be related to a continuum of dreaming intensity during sleep.

Kirsch (1968) noted a number of parallels between Jung's formulations and the findings of research on the REM state. First, disturbances resulting from REM deprivation, and subsequent REM rebound are phenomena consistent

with biological homeostasis and the compensatory function of dreams. Second, theories of a developmental function of the REM state (which occupies up to 50 percent of sleep in postnatal infants) are consistent with Jung's proposal that children are closer to, and as infants immersed in, the world of dreams and archetypal imagery.

As mentioned above, dreaming involves the pontine brain stem, which is related to the limbic system and thus is concerned with emotions and instinctual drives. The limbic system (composed of the oldest cerebral cortex and subcortical structures) and the hypothalamus are involved in homeostatic regulation--the maintenance of stability in the internal dynamic environment of the body. As Handler (1970) notes, "it thus appears likely that the limbic components of the cerebral hemisphere play a leading role in the programming of behaviour by determining the set of priorities among the various available responses of the organism to its environment" (p. 369). In general, the brain regulates its own functional level of activity through neuronal systems which are phylogenetically old. It thus controls adaptive responses in the nervous and endocrine systems in association with emotional distress and perceived threat. It is fairly well established, then, that at least the REM-related dreaming involves primitive brain structures which control emotions, instincts, and their homeostatic regulation for adaptation. Although crude, the relationship between the function of these brain systems and Jung's archetypes, objective psyche, and adaptive compensation in dreams is unmistakable.

Dream Recall

When we study dreams, we deal with a report (verbal or written) of a subjective dream experience accessible

only to the dreamer. Since the researcher is thus twice removed from the actual phenomenon, it is very important to recognize the various collection factors which may influence the recall and reporting of sleep mentation. These include: (a) the setting in which dreaming and reporting take place, (b) the method of awakening, (c) the interpersonal reporting context and style, (d) the time of night and sleep stage at awakening, (e) the reporting method, and (f) subject variables (Kramer, Winget, and Roth, 1975). For example, measures of dream recall can be obtained by questionnaire estimates, sleep interruption or home diaries. Baekeland (1970) compared questionnaire estimates of dream recall with a subsequent home sleep log (measuring number and clarity of dreams recalled) in a group of 27 young adult males and found questionnaire estimates of dream recall to be a fair predictor of detailed and content recall at home ($r = .465$, $\rho < .025$). However Cohen (1972a) has suggested that contentless (subject remembers dreaming but is unable to recall content) and dreamless (subject does not recall dreaming) reports are different types of non-recall phenomena as their distributions across time appear to vary independently. Also, laboratory sleep interruption produces good recall even in self-described non-recallers, since subjects can be awakened during or very shortly after REM periods when recall probability is high (Cory, Ormiston, Simmel, and Dainoff, 1975).

The lack of standardization in the above methods also introduces variance into dream recall measures, as does the time and method of arousal, e.g. subjects may be awakened (gradually or abruptly, by voice or alarm, during or varying lengths of time after REM periods). Goodenough, Lewis, Shapiro, Jaret, and Sleser (1965) found thinking reports to

occur more frequently following gradual than abrupt awakenings. This was also true of non-REM reports as compared to REM reports, and in general there were more mentation reports from REM sleep than from non-REM. REM density has also been found to be correlated with both the incidence of detailed dream reports from home ($r = .359$, $\rho < .025$) and questionnaire estimates of dream recall ($r = .467$, $\rho < .025$; Baekeland, 1970).

Classical memory processes are also central to the study of individual differences in dream recall. Trinder, Kramer, Fishbein, and Sandler (1969) demonstrated that the probability of a dream being recalled in the morning was higher for recent, more intense and longer dreams, and also for long, intense dreams which were first in a series. In a study using both questionnaire and diary measures of recall, Cory, Ormiston, Simmel, and Dainoff (1975) found that memory variables accounted for a large part of the variance in recall frequency, in that dream recallers had better memory for visual stimuli than non-recallers, especially on short-term memory tasks. Measures of anxiety, repression-sensitization, and internal-external control were unrelated to frequency of dream recall. In contradiction to Cory et al., Cohen (1971) demonstrated little relation between short-term memory and dream recall; however this study used questionable analogues of the dream recall process and a three-day dream diary measure of recall, which can hardly be considered representative of recall across time. These findings emphasize the importance of choosing personality variables which are theoretically relevant to dream recall per se, and studying the recall of different types of dreams. For although personality variables such as anxiety or repression-sensitization could account for variations in

recall of particular types of dream content (e.g. threatening or frightening material), it is unlikely that such effects would apply to all dreams.

In two extensive reviews concerning extraversion, arousal, learning, and memory, M. Eysenck (1976a, 1976b) proposed that higher arousal in introverts may produce a longer-lasting, more active trace process and thus lead to better long-term memory. Although high arousal may bias the subject's search process toward readily accessible or functionally dominant stored information, there are strong interactions between subject arousal, item arousal, the difficulty of the material, and retention intervals. M. Eysenck (1976b, pp. 400-401) noted that high arousal facilitates recognition and free recall at short retention intervals, and that high arousal items are more easily recalled (within an optimal arousal range determined by the arousal of the item and subject). He went on to say that "high arousal leads to increased selection of information about the physical characteristics of presented information and to decreased processing of semantic information" (p. 401), and concluded that "most of the evidence at present appears to be consistent with the hypothesis that high levels of arousal affect storage by focusing attention on physical characteristics of the presented information, whereas high levels of arousal affect retrieval by biasing the subject's search process toward readily accessible stored information more than is the case with lower levels of arousal" (p. 401). Although little research has been directed towards studying the differences between extraverts and introverts in the area of dream recall on awakening from sleep, it appears that introverts may have an advantage over extraverts (cf. p. 27). The higher arousal of the introvert apart from facilitating

the recall of physical stimulus characteristics (i.e. dream images) may also aid the recall of less intense dream material. Broughton and Gastaut's (1973) result which indicates that rapid awakening produces more reports, especially of less intense material (e.g. from non-REM sleep) certainly warrants more investigation in relation to introversion-extraversion. They also note that the limbic system, which is integral to REM sleep physiology, is related to memory mechanisms. Additional evidence for this is provided by Rapaport (1971) in his extensive work on emotions as central organizing factors in the active reconstructive processes of memory and in behaviour.

A comprehensive model of dream recall has been developed by David Cohen (1974c). In a detailed review of the literature, Cohen concluded that there was little consistent evidence for the hypothesis that repression affects recall (cf. Cohen, 1974b) and that habit strength developed through reinforcement history provided a better explanation of the results. He proposed the use of the two key concepts, "salience" (vividness, emotionality, bizarreness, and dreamer activity level in dreams) and "interference" (material competing with dream contents for conscious attention) in accounting for individual differences in dream recall. In conjunction with these, cognition (imagery orientation and ability to describe experiences) and motivation (interest and attitudes towards dreams, and practice recalling and reporting them) also influence memory for dreams. As evidence for this model, Cohen noted that physiological events which correlate with dream salience appear to correlate with dream recallability, and more tentatively, that phasic events and REM may relate to the salience of dream content.

Stronger support may be found in a study by Cohen and MacNeilage (1974) which showed that the dream content of

recallers had significantly greater subjective impact (salience) than that of non-recallers, with possibly even greater differences in non-REM reports. Koulack (1975) also found a decreased probability of morning recall (subjects reported having dreams which they could not recall) associated with low levels of dream affect. However Koulack demonstrated that a decreased probability of morning recall was also associated with high levels of dream affect. He interpreted this result as possible evidence of repression and questioned the view of Cohen (1974b) noted above. Whether these results are due to reporting characteristics or dream generation processes is a difficult question which will require further research. In a more recent paper, Koulack and Goodenough (1976) proposed an arousal-retrieval model (similar to Cohen's on a number of points) emphasizing increased likelihood of recall if awakening occurs during the life of the short-term memory trace. They noted further that "experiences occurring during or shortly after awakening compete with the target material for space in the limited capacity processing system, with the most salient of the set favoured in the competition (p. 975).

Given that dream recall is influenced by physiological, methodological, and psychological factors, there are a number of important implications which can be drawn from the above review. In general the techniques used to measure dream recall, the samples of dreams studied, and the personality dimensions chosen must be those most relevant to the particular questions under investigation (cf. Cohen, 1970). With respect to dream recall measures, questionnaire estimates are useful as a self-report index, but are unlikely to provide accurate information about an individual's actual dream recall. As sleep laboratory techniques decrease the effects of personality variables on dream recall (cf.

Cory et al, 1975), it appears that home dream diaries may provide the best method for studying dream recall and its relationship to personality. Furthermore, as will be discussed in the method section, home dreams as compared to laboratory dreams provide a dream sample obtained in a setting less likely to introduce interference into the processes of dreaming and recall. Home dreams are also likely to provide a good sample of salient dreams (cf. p. 52).

In the study of dream recall, the most valuable personality dimensions are likely to be those related to: (a) the cognitive ability and coding style necessary for dealing with dream experiences, (b) an interest in dreams, and motivation to attend to and recall such phenomena, (c) salient dream content, and (d) physiological and neurological characteristics which facilitate memory functioning upon awakening (and perhaps REM sleep arousals).

Before reviewing the research on personality, an introduction to the field of dream content analysis will outline the methods available for quantifying dream material and help to clarify the intimate relationship between dream recall and dream content.

Dream Content Analysis

A number of factors modify the relationship between the dream experience and the subject's report. Foremost among these is the clarity and detail of recall which depends on memory as well as on dream salience. Poor or vague recall should be distinguished from infrequent but clear recall, as it likely introduces distortions and omissions into the dream report. Consequently, measures of recall must distinguish the clarity and salience of dreams, as well as their frequency. A second concern of great importance to content analysis (and dream interpretation) is

the so-far neglected study of content differences due to reporting biases, expressive styles, and the differences between written and verbal reports. Other measurement problems include the editing of comments and associations in order to obtain a scoreable dream report, and the effect of report length on various types of measurement.

Ramsey (1953) reviewed studies of dreaming and concluded that there was a need for greater attention to the criterion of repeatability and quantification. He stressed the importance of specifying the nature of the subject populations carefully, and more particularly of providing precise definitions in classifying dream characteristics. Since that time, increasing attention has been paid to the construction of adequate content scoring devices and scale validity and reliability (cf. Kramer, Winget, and Roth, 1975).

In 1966 Calvin Hall and Robert Van de Castle published what is still the most comprehensive system of dream content analysis available. Hall defined content analysis as "the categorizing of units of qualitative material in order to obtain frequencies which can be subjected to statistical operations and tests of significance" (1969, p. 175). In this way, verbal reports of symbolic imagery can be converted into data, using sets of categories or scales which provide nominal or ordinal information. The majority of Hall and Van de Castle's scales are empirical, i.e. abstracted from dream material itself. These include settings (indoor, outdoor, ambiguous, familiar), objects, characters (number, sex, identity, age), social interactions (friendly, aggressive, sexual), activities (verbal, physical, looking, thinking, etc.), emotions (anger, apprehension, happiness, sadness, confusion) and numerous others. A well thought out coding system permits shorthand statements of elaborate interactions

and facilitates computer processing. A full description of the categories, scoring rules, norms, and reliabilities is provided in Hall and Van de Castle (1966), and an application of the system in a comparison of dream content among mental patients and normals can be found in Hall, 1966.

Hall and Van de Castle present a number of theoretical scales derived from theories of personality, e.g. ego strength, orality, regression, castration anxiety, primary process thinking, etc. This type of scale is more difficult to construct, as it must be validated against the theory, and the relevant elements must occur frequently enough in dream material to make the scale worthwhile. Van de Castle (1969) recommended refining or modifying simple categories which appear to have theoretical value and thus developing empirically valid semi-theoretical scales. For example, different densities of animal figures in dreams may provide a useful measure of the level of differentiation in cognitive structure, or perhaps of the psychological distance from the more primitive aspects of nature (p. 190). This approach appears to have great promise and should help to cut down the development of a great profusion of overlapping scales designed to measure similar constructs.

Once acceptable inter-scorer scale reliabilities have been obtained and the dream reports scored, it remains to determine the appropriate units of analysis and variable transformations. For example, variables may be measured for a single dream or a dream series. Often corrections for the length of the dream report or the values of other parameters are necessary in order to provide unbiased and meaningful results. Thus frequencies of male characters may be expressed in densities per 100 words of dream report or as proportions of the total number of characters. These manipulations may remove the effects of extraneous variables,

and facilitate the analysis and interpretation of results only when used carefully and appropriately.

While the field of content analysis and scale construction has certainly advanced in the years since Ramsey's 1953 review, the profusion and redundancy of scales remains a major problem. One possible solution to this difficulty may be found in the work of Hauri, Sawyer, and Rechtschaffen (1967). They rated 127 dream reports from 24 subjects on some 20 psychological characteristics, and then developed a factored scale composed of eight relatively independent dimensions: vivid fantasy, active control, pleasantness, verbal agression, physical agression, heterosexuality, perceptual (versus conceptual), and reference to past experience. Although these dimensions accounted for 63 percent of the total variance in dream characteristics, the small sample size and low to moderate inter-rater reliabilities on the original scales indicate the need for further work on the refinement of dream assessment techniques. It is apparent, however, that dream content can be quantified. The two major needs at this time are to determine the most valuable dimensions for understanding dream content (and its relationship to dream recall), and to develop a coherent interpretive framework (cf. Foulkes, 1969).

Relationships with Personality

Personality has been studied in relation to dream recall (cf. review by Cohen, 1970) and dream content (cf. the technique of individual personality assessment of Hall and Nordby, 1972) with varying degrees of success. Research has encompassed a great number of personality dimensions, and, on the whole, results have been weak and poorly integrated. This state of affairs is largely due to methodological deficiencies, the lack of a comprehensive personality

framework relevant to the study of dreams, and inadequate attention to the role of person-environment interactions. Working in the general area of personality-situation interactions, Carlson and Levy (1973) have provided an example of a solution to these problems. This entails drawing on the interactive possibilities within Jung's typology by studying the specific typological patterns relevant to particular research questions. The following section reviews the research related to Jung's typology, dream compensation, and the adaptive properties of dreams.

Dream recall as measured by questionnaire estimates has been studied in relation to ego strength, anxiety, repression, and maladjustment (Tart, 1962); repression-sensitization (Bone, Nelson, and McAllister, 1970); field independence (Bone, Thomas, and Kinsolving, 1972); and extraversion and neuroticism (Bone, 1968; and Farley, Schmuller, and Fischbach, 1971). For the most part, correlations have been low (typically between .2 and .3) and the findings difficult to replicate. Sampling bias and sex differences also influenced these results. For example, estimates of high dream recall may be related to extraversion, especially for females, and neuroticism for males (r's = .33 and .39 respectively, Bone, 1968) and to sex (females, Farley, Schmuller, and Fischbach, 1971). The value of further studies based exclusively on recall estimates is poor, given that self-reported low recallers often become high recallers when motivated to keep a dream diary (cf. Dallett, 1973a).

Hill (1972) compared high and low dream diary recallers on the Sixteen Personality Factor Questionnaire and found the former to be psychologically healthier: more mature, emotionally stable, self-assured, secure, and able to face reality. Hill and Cohen (1974c) both agree that higher dream recall is related to a receptivity to inner life and

the ability to live in the rich inner world of emotions, intuitions, and fantasies. Cohen also emphasizes cognitive style variables, i.e. divergent thinking, imagery ability, and richness of inner life, and a positive attitude towards dreams as meaningful phenomena, as factors relevant to high recall. Although there is little research directly concerned with Jung's typology and dream recall, the above findings certainly appear to implicate the attitude of introversion and the functions of intuition and feeling. The work of Deichsel (1973) is relevant to the possible role of introversion in dream recall. He found that although there were few content differences between the dreams of introverts and extraverts, the administration of hypnotic drugs (Methaqualone and Diphenyl-hydramine hydrochloride) reduced laboratory dream recall much more for extraverts than for introverts. Also, with respect to hypnotics, Firth (1974) found that they may make dreams more "everydayish" and less salient, and upon withdrawal, more vivid, bizarre, and unpleasant. Thus, introverts with their possibly higher initial arousal may have an advantage over extraverts in the recall of less salient dreams.

Concerning the relationship of Jung's typology to dream content, only a few isolated studies are available. These have used small and incomplete samples of the various Jungian types, and small dream samples; thus the results are of restricted significance. Howarth (1962) found no relationship between extraversion-introversion and degree of symbolic content in dreams as measured by a poorly-defined seven-point rating scale. On a dream questionnaire, extraverts described themselves as more active in dreams than did introverts, and neurotics had more black and white dreams. Colour in dreams was investigated by Suinn (1966), who found

a higher incidence of colour associated with introversion and feeling for both males and females; as well, colour vividness was related to sensation for males and to intuition for females.

Recently Domino (1976) attempted an empirical test of Jung's theory of dream compensation, by correlating 15 personality dimensions as measured by psychometric instruments (Edwards Personality Preference Scale and the Adjective Check List) with the same dimensions as measured by dream rating scales. All significant correlations were positive (i.e. between .26 and .48 for Achievement, Deference, Dominance, etc.), and the results were interpreted as showing little support for Jung's theory, and being more in line with the view that dreams are continuous with conscious functioning. However the dream sample was quite limited (only three dreams for each of 62 students) and Domino did not include measures of Jung's personality dimensions in the study. It is also interesting to note that the correlations between the scales of the two personality instruments ranged from .05 to .51. A further difficulty with this study is the reliability of the dream rating scales: the coefficients ranged from .53 to .81, and 10 of the 15 coefficients were below .70.

The major problem in this type of research is a conceptualization of compensation which fails to do justice to the individual complexity of this phenomenon. Within Jung's conception of compensation, a particular attitude or personality trait will be compensated for in dreams only when it is maladaptive for the individual's functioning or development. As well, compensation is likely to be more evident across a series of dreams than in a single dream. Compensation is not a static relationship between dreams

and personality, but a dynamic process of adaptation between the unconscious and consciousness.

Some support for this view and the importance of person-environment interactions in compensation may be found in the work of Framo, Osterweil, and Boszormenyi-Nagy (1962), Foulkes (1969), Hauri (1970), and particularly that of Dallett (1973a). The latter provides an enlightening investigation and discussion of the principles of continuity, complementarity, and compensation. In this research it was found that introverts submitted longer dream reports with a greater proportion of outdoor settings, and tended to get more of their environmental input from dreams than extraverts.

The proposition that dreaming is a psychological process with both representational and adaptive properties was investigated in an experimental study by Cohen and Cox (1975). They compared the laboratory dreams (one night) of high and low neurotics under positive and negative (interpersonal and ego-related stress) presleep conditions, and found that the presleep and dream affect of high neurotics was more affected by presleep stress and that this group appeared to take longer to adapt to the stress. Presleep stress also enhanced dream salience and thus recall, especially for infrequent recallers. It was tentatively concluded that stress leads to more bizarre, dysphoric, and metaphorical forms of expression in dreams--or in Jung's terminology, more archetypal dreams. Cohen and Cox then proposed that dream salience is indicative of "psychological work" (p. 104), and that some types of dreams are more effective or adaptive than others. It may be that more salient dreams reflect a greater need for adaptation and/or more processing of a psychologically adaptive nature.

Carrington (1972) tested the general assumption that dream content reflects waking psychopathology or normalcy. She compared the dreams (5 per subject) of two female samples (30 schizophrenics and 30 university students) on numerous scales of dream content related to pathology. In general, control dreams were everyday and realistic, while schizophrenic dreams showed a traumatic state of stress. Although all subjects showed some bizarre elements, these were more numerous and more extreme in the dreams of schizophrenics, and among controls the extremity of bizarreness correlated positively with maladjustment as measured by the MMPI (based on a computer programme designed to measure college maladjustment). This finding is consistent with Jung's proposition that in schizophrenia the archetypal levels of the psyche are overwhelmingly activated, and dominate psychological functioning. Similarly Carrington suggests that maladjusted people may use archaic or regressive modes of problem-solving, while well-adjusted people may only exhibit bizarre and primitive dreams when under great stress (see also Foulkes, 1969).

Given the limited dream sample upon which the above findings are based, and the possibility that irrational modes of processing can be very flexible and creative, further research will be necessary before any firm conclusions can be drawn concerning the relation of bizarre, primitive dream content to adaptation and pathology (cf. Cartwright, 1972). Nevertheless what does emerge from the above studies is a set of characteristics which appears to form a dimension of central importance to the understanding of dreams: dream salience.

Degree of Archetypality in Dreams

The salience of dream content, or as it will be called in this research, degree of archetypality, has appeared

frequently in the literature as a major dimension for quantifying dream content. A case in point is the work of Foulkes (1969) who studied boys' (aged 6-12) dreams and found a general tendency for a particular subject to have either realistic or bizarre dreams, with all subjects having at least some of each type. Foulkes differentiated two broad classes of dreams: the more common everyday type, concerned with mastery over the contemporary social environment; and the less frequently observed bizarre type, with frightening supernatural forces and ego-alien motives. This latter type of dream shows a basic discontinuity with conscious life (the experiences and events being impossible in reality), and fits Jung's designation of archetypal. However, given the impossibility of separating the personal and the collective unconscious (as will be recalled, the objective psyche forms the core structure of the more personal layers), it is possible that all dreams are somewhat archetypal. Therefore, although arbitrary divisions may be useful in research and therapy, it makes more sense to conceptualize dream content as varying along a continuum of archetypality, defined as the degree to which instinctive patterned reactions and their affective, behavioural and perceptual components are manifest in dream content.

The foundation for future work in this area has been laid by a Jungian analyst, H. Y. Kluger (1975), who used content analysis to examine Jung's proposition that there are two sources of dream imagery: the personal unconscious and the collective unconscious. Kluger collected dreams by questionnaire from over 200 university students, including some who had been in analysis. He asked for the earliest, most vivid, and most recent dreams that each subject could recall, and predicted that the earliest (recalled as having occurred at or below age six, n = 85) and most vivid classes

(n = 101) would contain significantly more archetypal dreams than the most recent class (less than one month old, n = 151). This hypothesis was tested by rating the manifest content of each dream on four criterion scales designed to provide a measure of the degree of archetypality. The four scales were: presence or absence of a mythical parallel, degree of affect, degree of rationality, and degree of similarity to everyday life (everydayness)--all dimensions which Jung associated with archetypal dreams (i.e. dreams which contain mythological themes, are affect-laden, irrational or bizarre; cf. Kluger, 1975, p. 24). If a dream attained a critical score on at least three of the four scales, it was deemed archetypal, i.e. presence of a mythical parallel, heightened affect, nonrational imagery or behaviour, and remoteness from everyday life (Note: the critical scores were arbitrarily set at approximately the scale midpoint). Inter-rater reliabilities for two judges (25 dreams) were (Pearson's r) between .7 and .9. The major hypothesis was confirmed, with the earliest and most vivid classes showing significantly more archetypal dreams (56.4% and 65.4% respectively) than the most recent class (20.0%).

It was also determined that analysands had more archetypal dreams than non-patients (whether due to a preoccupation with dreams or to more neurotic difficulties is uncertain). When compared with a current sample of children's dreams, ages 4-6, the earliest dreams were found to be representative of childhood dreams on the dimensions of archetypality. The best criterion for distinguishing archetypal dreams appeared to be degree of everydayness, and Kluger cited the observed bimodality in the distribution of the scores as evidence for two different sources of dreams. Although this could have been an artifact of the construction

or use of the scale itself, this investigation does show that it is possible to differentiate degrees of archetypality or salience on an empirical basis.

Thus Kluger's research has opened the way to a systematic investigation of Jung's theories by providing an empirical methodology (consistent with Jung's constructs) for the study of archetypality in dreams.

RESEARCH HYPOTHESES

Hypotheses for this research are derived from Carl Jung's formulations concerning the unconscious, dreams, and personality. The hypotheses include the replication of Kluger's findings and their extension as they are related to Jung's typology and neuroticism. This study also includes the use of home dream diaries.

The major hypothesis is that there are two main types of dreams, archetypal and everyday, and that the recall of these two types of dreams is related to personality characteristics and interests. Archetypal dreams are defined by the presence (in sufficient intensity) of at least two of the following three characteristics:

(a) Remoteness from everyday experience;

(b) Heightened affect;

(c) Non-rational imagery or behaviour.

The following hypotheses were tested:

Hypothesis I. Earliest (age $\leq$ 6) and most vivid dream samples will show a significantly higher degree of archetypality than the most recent (everyday) sample of dreams. This was Kluger's (1975) result.

The next three hypotheses are derived from the following assumptions: (a) In people who are introverted or intuitive, the collective unconscious is more "activated" and/or its dream manifestations are more accessible due to

the interest and attention given to dreams and material of an intra-psychic or unconscious nature; (b) the collective unconscious is activated due to intra-psychic conflict or stress, directly proportional to the degree of neuroticism.

Hypothesis II. Degree of archetypality in the dreams of the most vivid and most recent samples will be positively correlated with degree of introversion, intuition, and neuroticism as measured by the MBTI and the EPI.

Hypothesis III. In the diary sample density of recall of archetypal dreams and the proportion of dreams recalled which are archetypal will be positively correlated with degree of introversion, intuition, and neuroticism.

Hypothesis IV. Dream samples collected from people indicating an interest in or preoccupation with dreams (e.g. members of the C. G. Jung Society, and those in psychotherapy involving dreams) will show a higher proportion of archetypal content than those of people indicating little interest.

Hypothesis V. Dream recall (without regard to archetypality) as measured by questionnaire and diary will be positively correlated with introversion, intuition, feeling, and interest (cf. pp. 27, 36-37, 44). As well, females will show higher questionnaire estimates and diary recall than males (cf. p. 44).

Jung has proposed that the collective unconscious of the male has a feminine character, while that of the female has a masculine character. Given that the archetypal dream sample in the main stems from the collective unconscious (and the everyday from the personal) and assuming that the masculine or feminine character of a dream can be roughly approximated by the ratio of male characters to female characters, it is further proposed that:

Hypothesis VI. (a) For males, the male character/female character ratio will be lower for archetypal dreams than for everyday dreams; (b) For females, the ratio will be higher for archetypal dreams than for everyday dreams.

METHOD

This research was carried out in two major stages: first, the replication of Kluger's findings using the same questionnaire dream report method, but including a sleep and dream questionnaire, the MBTI, and the EPI; and second, the investigation of individual differences in dream recall and dream content (archetypality, etc.), using home dream diaries collected over three to four weeks. In the first stage, care was taken to obtain as balanced a sample as possible with respect to sex and the various Jungian types. The second stage dream diary group was a sub-sample self-selected from the first stage. In the second stage, home dreams were used rather than laboratory dreams for the following reasons:

(a) they appear to be representative of an individual's dream life (Trinder and Kramer, 1971);

(b) they contain fewer references to the research situation (Hall and Van de Castle, 1966b);

(c) they tend to be more dramatic and intense (Hall and Van de Castle, 1966b; Domhoff, 1969);

(d) they are likely to provide a good sample of archetypal dreams since they tend to be recalled from later, longer REM periods which are associated with increased recall, vividness, emotionality, and novelty (Verdone, 1965; Dorus, Dorus, and Rechtschaffen, 1971; and Kramer, Roth, and Czaya, 1975).

(e) lastly, collecting home dream diaries instead of

laboratory dreams probably introduces fewer disturbances into the delicate relationship between the conscious personality and the unconscious world of dreams.

Data-gathering Techniques

Subjects were recruited from three populations: university students, members of the C. G. Jung Society of Montreal, and members of the general public who were acquaintances of the researcher. Participation was requested by letter (Appendix I) or by a short verbal presentation. The purpose of the research was stated to be the investigation of relationships between personality and dream content. Subjects were assured of strict confidentiality, and that dream reports would be used for content analyses only, not for interpretation. Research packages contained an instruction sheet (Appendix II), the EPI, the MBTI, a Sleep and Dream Questionnaire (Appendix III), and a number of 5" x 8" ruled cards. The personality inventories and the questionnaire were completed first, and then the earliest, most vivid, and most recent dreams recalled were written or typed on the cards. All materials were returned by mail, and subjects who agreed to participate in the second stage were then sent a dream diary package. This contained instructions (Appendix IV), 30 cards and copies of a Dream Diary Questionnaire (Appendix V), and a stamped, addressed return envelope. At the conclusion of their participation, all subjects were sent a letter describing the research (Appendix VIa) and an Annotated Bibliography on Dreams and Dreaming (Appendix VIb). This was later followed by a description and interpretation of the results (Appendix VIc).

The Sleep and Dream Questionnaire was designed to measure dream recall, sleep quality, attitudes towards dreams, and various characteristics of dream experience and content.

The Dream Diary Questionnaire provided measures of recall quality, temporal setting, emotional intensity, dream colour, and the subject's associations.

Subject Characteristics

In the early stages of data collection, it was discovered that the subject sample was biased in favour of the MBTI factors I, N, and F. This segment of the research sample was composed primarily of Jung Society Members and Psychology students. The type breakdown for these groups can be seen in Appendices VII and VIII. These tables were prepared using the Selection Ratio Type Table (SRTT) Program (available from the Center for Applications of Psychological Type in Gainesville, Florida), which compares type distributions between a group and a base population (in this case the total dream research sample of this study, cf. Table 1). The SRTT program computes a selection ratio (the ratio of percentage of type in group to percentage of type in base) for the various type combinations, and then calculates the level of significance using either the Chi-square or the Fisher's exact probability test (based on a 2 x 2 contingency table with cells: number of type in group; number not of type in group; number of type in base minus group; number not of type in base minus group). It can be seen from the tables that the Jung Society and Psychology groups were overselected on the various combinations of I, N, and F.

In order to balance the sample somewhat, participants were requested from the disciplines of Engineering (Appendix IX) and Business, Management, and Accounting (Appendix X). As anticipated, these groups increased the number of subjects with stronger preferences for E, S, and T. The remaining groups: Science students (Appendix XI), Miscellaneous

Table 1

Myers-Briggs Type Indicator **Type Table**

Total Sample of Dream Research Subjects
N = 146

Base population = 146

Legend: % = Percent of total choosing this group who fall into this type.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 9 %=6.16	*ISFJ* N= 12 %=8.22	*INFJ* N= 12 %=8.22	*INTJ* N= 12 %=8.22	JUDGING
ISTP N= 10 %=6.85	*ISFP* N= 5 %=3.42	*INFP* N= 19 %=13.01	*INTP* N= 5 %=3.42	PERCEPTIVE — INTROVERTS
ESTP N= 8 %=5.48	*ESFP* N= 2 %=1.37	*ENFP* N= 12 %=8.22	*ENTP* N= 6 %=4.11	PERCEPTIVE — EXTRAVERTS
ESTJ N= 5 %=3.42	*ESFJ* N= 11 %=7.53	*ENFJ* N= 12 %=8.22	*ENTJ* N= 6 %=4.11	JUDGING

	N	%
E	62	42.47
I	84	57.53
S	62	42.47
N	84	57.53
T	61	41.78
F	85	58.22
J	79	54.11
P	67	45.89
IJ	45	30.82
IP	39	26.71
EP	28	19.18
EJ	34	23.29
ST	32	21.92
SF	30	20.55
NF	55	37.67
NT	29	19.86
SJ	37	25.34
SP	25	17.12
NP	42	28.77
NJ	42	28.77
TJ	32	21.92
TP	29	19.86
FP	38	26.03
FJ	47	32.19
IN	48	32.88
EN	36	24.66
IS	36	24.66
ES	26	17.81

NOTES:

students (Appendix XII), and Miscellaneous subjects (Appendix XIII), brought the total sample to 146, with at least 10 of each of the eight major Jungian types.

First Stage Sample

The first stage sample contained 146 subjects, 84 females and 62 males. The mean age was 25.66 with a standard deviation of 10.06 and a range from 16 to 71 years. As noted above, the type breakdown for this sample and the various sub-groups may be found in Table 1 and Appendices VII through XIII. Table 2 provides the means and standard deviations for the personality variables, and Table 3 the intercorrelations (Pearson's r). It should be noted that the values in Table 3 were calculated using the continuous scores from the MBTI. These are derived by subtracting the preference scores for E, S, T, and J from 100, and adding the preference scores for I, N, F, and P to 100, in order to form the four continuous dimensions, EI, SN, TF, and JP.

Dream Diary Sample

The Dream Diary Sample contained 30 subjects, 22 females and 8 males, who were self-selected from the First Stage Sample. The mean age was 32.2 with a standard deviation of 13.41 and a range from 19 to 65 years. The type breakdown for this sample is presented in Table 4. As can be seen, this group is overselected for the various combinations of I, N, F, and P. The means and standard deviations for the personality variables can be found in Table 5, and the intercorrelations in Table 6.

Content Analysis Scales

All dream protocols from the earliest, most vivid, most recent, and diary samples were scored for number of

T A B L E 2

Means and Standard Deviations of

Personality Variables for First Stage Sample

	Inventory									
	EPI		MBTI (Preference Scores)							
Variable	Extraversion	Neuroticism	E	I	S	N	T	F	J	P
N	146	146	62	84	62	84	61	85	79	67
M	11.64	10.52	17.48	20.81	19.39	23.02	15.03	20.48	23.46	19.03
SD	3.56	4.49	12.03	13.81	13.22	13.48	11.53	10.80	12.75	13.80

T A B L E 3

Intercorrelations (Pearson's r) of Personality Variables for First Stage Sample

n = 146

	Neuroticism	EICONT[1]	SNCONT	TFCONT	JPCONT
Extraversion	.09	-.64***	.06	.00	.20*
Neuroticism		.08	-.09	.12	.01
EICONT			-.09	-.02	-.05
SNCONT				.18*	.22**
TFCONT					.10

* p < .05
** p < .01
*** p < .001

[1] MBTI variables are expressed as continuous scores, with I, N, F, and P at the high end of the scale.

Table 4

Myers-Briggs Type Indicator

Type Table

Dream Diary Group
N = 30

Base Population
N = 146

Legend: % = Percent of total choosing this group who fall into this type.
I = Self-selection index; ratio of percent of type in group to percent in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 0 %= 0.0 I = 0.0	*ISFJ* N= 2 %= 6.67 I = 0.81	*INFJ* N= 3 %=10.00 I = 1.22	*INTJ* N= 2 %=6.67 I = 0.81	JUDGING
ISTP N= 0 %= 0.0 I = 0.0	*ISFP* N= 0 %= 0.0 I = 0.0	*INFP* N= 8 %=26.67 I = 2.05*	*INTP* N= 2 %=6.67 I = 1.95	INTROVERTS PERCEPTIVE
ESTP N= 2 %= 6.67 I = 1.22	*ESFP* N= 0 %= 0.0 I = 0.0	*ENFP* N= 3 %=10.00 I = 1.22	*ENTP* N= 3 %=10.00 I = 2.43	PERCEPTIVE EXTRAVERTS
ESTJ N= 0 %= 0.0 I = 0.0	*ESFJ* N= 2 %= 6.67 I = 0.88	*ENFJ* N= 2 %= 6.67 I = 0.81	*ENTJ* N= 1 %= 3.33 I = 0.81	JUDGING

	N	%	I
E	13	43.33	1.02
I	17	56.67	0.98
S	6	20.00	0.47**
N	24	80.00	1.39**
T	10	33.33	0.80
F	20	66.67	1.15
J	12	40.00	0.74
P	18	60.00	1.31
IJ	7	23.33	0.76
IP	10	33.33	1.25
EP	8	26.67	1.39
EJ	5	16.67	0.72
ST	2	6.67	0.30*
SF	4	13.33	0.65
NF	16	53.33	1.42*
NT	8	26.67	1.34
SJ	4	13.33	0.53
SP	2	6.67	0.39
NP	16	53.33	1.85***
NJ	8	26.67	0.93
TJ	3	10.00	0.46
TP	7	23.33	1.17
FP	11	36.67	1.41
FJ	9	30.00	0.93
IN	15	50.00	1.52*
EN	9	30.00	1.22
IS	2	6.67	0.27*
ES	4	13.33	0.75

NOTES: Symbols following the selection ratios
* implies significance at the .05 level, i.e., CHI SQ. > 3.8;
** implies significance at the .01 level, i.e., CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e., CHI SQ. > 10.8.
(underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

T A B L E 5

Means and Standard Deviations of

Personality Variables for Dream Diary Sample

	Inventory									
	EPI		MBTI (Preference Scores)							
Variable	Extraversion	Neuroticism	E	I	S	N	T	F	J	P
n	30	30	13	17	6	24	10	20	12	18
M	11.00	10.40	18.38	20.88	18.00	25.08	13.20	24.20	18.00	21.56
SD	3.18	5.13	15.65	16.67	8.46	15.78	12.05	9.14	13.87	15.15

TABLE 6

Intercorrelations (Pearson's r) of Personality Variables for Dream Diary Sample

n = 30

	Neuroticism	EICONT[1]	SNCONT	TFCONT	JPCONT
Extraversion	.33	-.48**	-.14	-.16	.12
Neuroticism		.23	-.13	-.08	-.13
EICONT			-.07	.15	-.21
SNCONT				-.04	.38*
TFCONT					-.04

* $p < .05$
** $p < .01$

[1] MBTI variables are expressed as continuous scores.

words, settings, characters, degree of affect, degree of rationality, and degree of "everydayness." The earliest, most vivid, and most recent samples were scored by me, and by two other raters (female, ages 20 and 27), well known to me and acquainted with the purposes of the research. The diary sample was scored by me and by one of the other raters.

Reliability Samples

In order to establish acceptable reliabilities in the use of the scales, two sub-samples of 33 dream reports were chosen at random from the earliest, most vivid, and most recent dream samples. Care was taken to ensure that these sub-samples were as representative and diverse as possible; one-third of each sub-sample was chosen from each of the three samples; at least two dreams from each of the eight Jungian types were included in each sample; and the length of the reports varied from 11 to 480 words. All dreams were scored blind as to subject variables and sample (although it should be noted that in the case of certain of the earliest dreams, the sample was evident due to the nature of the content), using written instructions only. Before scoring on the various scales, all comments and associations were crossed out on each report, and the number of words was counted. With the first reliability sample, the Pearson's correlation for words between rater one (the principal investigator) and rater two was $r = .99$; with the second reliability sample, between rater one and rater three, it was $r = 1.00$.

Settings and Characters

Settings were scored as indoor, outdoor, ambiguous, or no setting, according to the rules in Hall and Van de Castle

(1966, pp. 36-38). Using reliability sample No. 1, the percentage of agreement across dreams between rater 1 and rater 2 was 87% for presence and 87% for type. On reliability sample No. 2, rater 1 and rater 3 obtained 87% agreement for presence and 95% for type.

TABLE 7

Percent Agreement for Characters

	Total	Presence	Number	Sex	Identity	Age
Reliability Sample 1 (Raters 1 & 2)	76%	80%	93%	90%	81%	100%
Reliability Sample 2 (Raters 1 & 3)	79%	85%	97%	94%	86%	98%

Affect, Rationality, and "Everydayness"

The scales used to rate the degrees of affect, rationality, and "everydayness" are presented in Appendices XV, XVI, and XVII respectively (Kluger's mythological parallel scale was not used as it depends heavily on the knowledge of the rater). In the case of rationality and "everydayness," these 7-point scales are identical to those used by Kluger (1975). However the original 4-point affect scale (see Appendix XVIII) did not show adequate reliability (Pearson's $r < .70$) and was thus expanded to a 6-point scale. All scoring was done using written instructions only, and any ambiguities which arose during the reliability scoring were clarified by additional or expanded rules. As well a fourth rater (male, age 23) provided reliability scoring through the mails, and thus had no contact with the principal investigator concerning the application of these scales.

The reliability figures for the affect, rationality, and "everydayness" scales are presented in Tables 8, 9, and 10 respectively (see Appendices XIX, XX, and XXI for the raw data). Although these scales are at best ordinal in nature, recent evidence has shown that the Pearson correlation coefficient is quite robust with respect to violations of normality and the type of measurement scale (Havlicek and Peterson, 1977). Thus Pearson's r has been chosen as the correlation coefficient for use in this research.

TABLE 8

Affect Scale Inter-Rater Reliabilities (Pearson's r)
Reliability Sample No. 1 (n = 33)

Rater	2	3	4
1	.94	.84	.86
2		.86	.81
3			.74

TABLE 9

Rationality Scale Inter-Rater Reliabilities (Pearson's r)
Reliability Sample No. 1 (n = 33)

Rater	2	3	4
1	.76	.85	.82
2		.71	.70
3			.78

TABLE 10

"Everydayness" Scale Inter-Rater Reliabilities (Pearson's r)
Reliability Sample No. 1 (n = 33)

Rater	2	3	4
1	.87	.80	.81
2		.74	.81
3			.87

As the affect scale reliability between rater 1 and rater 3 was based on the re-scoring of the first reliability sample using the expanded affect scale, a further check was made by applying this scale to the second reliability sample: r = .92. A final reliability check was made (at the completion of the scoring of all the dream protocols) between raters 1 and 2, using a sample of 26 dreams drawn at random from the diary sample. The correlations were as follows: words, r = .99; affect, r = .81; rationality, r = .73; and "everydayness," r = .76. There was 78% agreement as to settings and 70% total agreement as to characters.

Scoring Procedures and Materials

The scoring card designed to facilitate the transfer of personality and questionnaire data to computer cards is presented in Appendix XXII. The variables include subject code, group code, sex, age, marital status, Eysenck's extraversion and neuroticism scores, the MBTI type number and letters, and EI, SN, TF, and JP continuous scores; the remainder of the variables are derived from the Sleep and Dream Questionnaire (see Appendix XXIII for scoring instructions.

The earliest, most vivid, most recent, and diary dreams

were scored blind and randomly as to sample and subject (using the subject's original reports). A scoring card is presented in Appendix XXIV, filled in for words, settings, characters, affect, rationality, "everydayness," and Dream Diary Questionnaire Variables (questions 1, 2, 3, 5, 6, and 7, treated as nominal or ordinal scales). Dream reports were scored in groups of approximately 100, with scoring checks made every 50 dreams by re-scoring the first 10 of the series (to determine if the rater's use of the scales had changed). The scoring sequence was as follows: each dream was scored for words, settings, and characters; then each dream was scored for affect in the same sequence; following this the dreams were scored for rationality in reverse sequence; finally the dreams were shuffled in groups of ten and then scored for "everydayness" (sequence changes were designed to spread temporal effects in the use of the scales across the dream samples).

Derived Variables

The archetypality score for each dream was the number of archetypal scales on which it met or went beyond a critical score. For the affect scale, the critical score was greater than or equal to 4; for the rationality and "everydayness" scales, less than or equal to 1.5. These are the same scale points which Kluger used, and his finding of bimodal score distributions (1975, p. 41) supports these choices. If a dream obtained an archetypality score of 2 or 3, it was deemed archetypal; all other dreams were classed as everyday.

Dream diary recall was expressed in densities, i.e. the number of dreams or nights with dreams, per diary night, and in proportions, i.e. the proportion of dreams recalled which were archetypal or everyday.

Dream content characteristics were expressed as densities (e.g. the number of female characters per 100 words of dream report), proportions (e.g. the proportion of all characters which were male) and ratios (e.g. the ratio of male to female characters).

Statistical Analyses

Analysis of the data was carried out using tests for independent and dependent group comparisons, and Pearson's product-moment correlation as a measure of relationship between variables. Various tests of significance were used, as appropriate to the nature of the data collected.

Nominal data were analyzed using the Chi-Square test. Ordinal level data were analyzed with the Mann-Whitney U-test (Siegel, 1956, p. 116) for two independent samples, and the Wilcoxon Matched-Pairs Ranked-Signs Test (Siegel, 1956, p. 75) for two related samples. The t-Test was used for group comparisons on interval level data.

Wherever possible Pearson's r was used as a measure of relationship between variables, as it utilizes and provides the greatest amount of information, and has been shown to be robust with respect to violations of normality and the scale level (Havlicek and Peterson, 1977).

One-tailed probability levels were used in all cases in which the direction of the results was predicted. All other tests of significance were made under two-tailed probability levels.

RESULTS

Approximately 750 research packages were distributed, and of these 146 were returned (approximately 20%). Because some subjects were unable to recall dreams for all three categories, the final first stage dream sample consisted of 106 earliest dreams (including those recalled as having occurred at ages greater than six), 105 most vivid dreams, and 102 most recent dreams (recalled as having occurred within one month of reporting). Some people who submitted their results reported recalling no dreams (n = 24). The only significant personality test difference between this group and the 122 people who recalled at least one dream (cf. Appendix XXV) was that the non-recall group was overselected for introverted thinking types with sensation as the auxiliary function (ISTP): I = 2.43, Chi Sq. = 4.34, $p < .05$.

The 30 subjects who agreed to keep dream diaries (approximately 20% of the total sample of 146 dream research subjects) contributed 384 dreams. The length of the diary collection ranged from 6 to 42 nights, $\underline{M}$ = 23.03 and S.D. = 8.82. The diaries were kept for a total of 691 nights, and there was dream recall on 295 nights (42.7%). The range for dream recall was .09 to 2.29 dreams per diary night, $\underline{M}$ = .65 and S.D. = .43. The proportion of nights with dream recall ranged from .09 to 1.00, $\underline{M}$ = .47 and S.D. = .18.

Archetypality of Dream Samples

The distribution of archetypal scores for the three first stage samples of dreams is shown in Table 11. The earliest dream sample contained 59% archetypal dreams (archetypality scores of 2 and 3), the most vivid sample contained 64%, and the most recent sample, 24%.

TABLE 11

Number and Percentage of Each Archetypality Score For First Stage Dream Samples

Sample	Archetypality Score				N
	0	1	2	3	
Earliest	13 12%	30 28%	34 32%	29 27%	106
Most Vivid	18 17%	20 19%	26 25%	41 39%	105
Most Recent	42 41%	36 35%	14 14%	10 10%	102

The earliest dream sample was further divided by estimated age at occurrence (Table 12). Of those dreams estimated to have occurred at or below age 6, 68% were archetypal. As the estimated age rose, the percentage of dreams which were archetypal decreased.

TABLE 12

Number and Percentage of each Archetypality Score by Estimated Age of Dream Occurrence for the Earliest Dream Sample

Estimated Age at Occurrence	Archetypality Score				N	% Archetypal
	0	1	2	3		
6 or less	3 7%	10 24%	12 29%	16 39%	41	68
7--10	7 18%	12 30%	14 35%	7 18%	40	53
11--15	2 17%	4 33%	4 33%	2 17%	12	50
16 or over	1 14%	3 43%	2 29%	1 14%	7	43
No age given	0 0%	1 17%	2 33%	3 50%	6	83

Replication of Kluger's Findings

The percentages of archetypal dreams found for the three first stage dream samples in this study are very close to those obtained by Kluger, 1975 (cf. Table 13).

TABLE 13

Percentage of Archetypal Dreams in each Dream Sample For Data of Kluger (1975) and this Study

	This Study	Kluger (1975)
Earliest (Age $\leq$ 6)	68% (N = 41)	56% (N = 85)
Most Vivid	64% (N = 105)	65% (N = 81)
Most Recent	24% (N = 102)	20% (N - 130)

The largest difference between Kluger's study and this study (earliest sample) was found to be non-significant using a test for the significance of difference between two independent proportions, $Z = 1.27$, $p = .20$.

It is likely that the differences observed are due to sampling error. They could also have resulted from the use of three rather than four archetypality scales, with scores beyond the critical point on two scales rather than three, as a cutoff. In order to test this possibility, the dreams were re-classified as everyday or archetypal, using a weighted prediction equation for the three scales which was derived from the reliability data reported in Kluger's study (N = 25). There was 94% agreement as to classification between the two methods, with only a slight overestimation of the percentage of archetypal dreams using two out of three scales as a criterion. Given the sampling differences, the limited data base used in deriving the

weighted prediction equation, and the inter-rater variance in scoring, the agreement between the two studies is excellent. The use of only three scales to rate archetypality is thus justified in comparing the results of this study to Kluger's earlier research.

Hypothesis I predicted less archetypality in the most recent dreams. It was tested using the Wilcoxon Matched-Pairs Signed-Ranks Test for dependent groups with subjects who had contributed dreams to both dream samples in the comparison, and the Mann-Whitney U-Test for independent groups with subjects who had contributed a dream to only one of the samples in the comparison. There were only 41 earliest dreams recorded which the respondents recalled as occurring at age six or earlier. In order to obtain an earliest dream sample of sufficient size for meaningful comparisons, earliest dreams which had occurred after the age of six were included in the analyses. The total sample of earliest dreams which was used in the analysis contained a lower percentage of archetypal dreams than the sub-sample of dreams remembered up to age six (59%, N = 106, versus 68%, N = 41).

Table 14 presents the results of the comparisons for earliest with most recent, most vivid with most recent, and earliest with most vivid samples respectively.

The earliest and most vivid dream samples show significantly higher proportions of archetypality than does the most recent sample. This provides strong support for Hypothesis I (p. 50). The effect was weaker when evaluated by the independent samples comparison between the earliest and most recent dreams, probably because the earliest sample contained only six dreams which were recalled as having been experienced at or below the age of six years. The statistical comparisons indicate no significant difference in the proportion of archetypality of the earliest and the

TABLE 14

Statistical Comparisons of Proportions of Archetypal Dreams among the Earliest, Most Vivid, and Most Recent Dream Samples

Comparison	Statistical Test: Independent data: Mann-Whitney U-test					Correlated data: Wilcoxon Matched-Pairs test		
	N_1	N_2	U	Z	p (1-tailed)	N	Z	p (1-tailed)
Earliest vs Most Recent	18	14	86.5	-1.601	.055	88	-4.865	< .001
Most Vivid vs Most Recent	13	10	25.0	-2.573	.005	92	-5.269	< .001
Earliest vs Most Vivid	12	11	56.5	-0.629	.529	94	-0.728	.466

most vivid dream samples.

Each of the archetypality scales considered separately: the affect, rationality, and everydayness scores, also significantly differentiated the most recent from the other two dream samples. In each case the earliest and most vivid dreams were significantly more affective, ($p < .01$, 1-tailed), less rational ($p < .001$, 1-tailed), and less everyday ($p < .001$, 1-tailed) than the most recent dreams.

The most recent sample of dreams was compared with the complete diary sample of dreams (Table 15), and the two samples contain almost identical distributions of archetypality scores. Thus it is possible to obtain a cross-sectional dream sample in which the relative proportions of everyday and archetypal dreams match the proportions obtained in a longitudinal dream diary sample.

The use of judges rating scales was compared directly to the respondent's dream ratings in the following way: When respondents' affect ratings of their own dreams (dream diary sample) were substituted for judges' affect ratings of the same dreams, the proportion of archetypal dreams remained almost exactly the same: 23.9% using the respondents' ratings, compared with 24.2% using the judges' ratings.

TABLE 15

Distribution of Archetypality Scores for the Most Recent and the Dream Diary Samples

Sample	Archetypality Score				N	% Archetypal
	0	1	2	3		
Most Recent	42	36	14	10	102	24
	41%	35%	14%	10%		
Dream Diary	179	112	49	44	384	24
	47%	29%	13%	11%		

Relationship of Archetypality with Personality Variables

Correlations between archetypality scores (First Stage Dream Samples) and personality variables are presented in Table 16. Hypothesis II (p. 51) proposes positive correlations between the degree of archetypality and the personality variables of introversion, intuition, and neuroticism as measured by the Myers-Briggs and the Eysenck Personality scales. There is a positive correlation between the Myers-Briggs intuition scores and archetypality scores among men for the most recent dream sample only, but the other parts of this hypothesis are not supported by the data. There is also a small but significant correlation between the sum of the Affect, Rationality, and Everydayness scale scores and the Myers-Briggs intuition scores for the most recent sample only ($r = .25$, $p = .006$, 1-tail, $N = 102$).

For the diary sample, the degree of archetypality of each subject's diary (calculated as the proportion of dreams submitted which were categorized as archetypal) was correlated with the various personality variables (Table 17). The mean archetypal proportion was .262, S.D. = .172.

There was a positive correlation between the proportion of archetypal dreams and intuition scores in the dream diary sample. However there was no consistent correlation between the archetypal proportion and introversion, and the female group showed a significant positive correlation between extraversion on the Myers-Briggs scale and the archetypal proportion. Contrary to the prediction made in Hypothesis III, a significant negative correlation was found between the archetypal proportion and neuroticism.

Numerous partial correlations were calculated in order to confirm the independence of the above findings with respect to the other personality variables. The correlation

TABLE 17

Correlation of the Proportion of Dreams Categorized as Archetypal with Personality Variables for Dream Diary Sample--Pearson's r

	Eysenck Extraversion	Eysenck Neuroticism	Extraversion/ Introversion[1]	Sensation/ Intuition[1]
Diary Sample (N = 30)	-.155	-.373*	-.334	.416**
Females (N = 22)	-.134	-.418	-.444*	.420
Males (N = 8)	-.245	-.137	-.142	.370

* $p < .05$ (2-tail)

** $p = .011$ (1-tail)

[1] Myers-Briggs Continuous Scores

N.B. No significant correlations were found for Thinking-Feeling or Judging-Perceiving Myers-Briggs Continuous Scores.

between the proportion of archetypal dreams and intuition (r = .42) remained at this level when the effects of the other variables (extraversion, neuroticism, and EI) were partialled out: range of partial correlations, r = .40 to .42. Similar results were obtained with respect to extraversion-introversion on the Myers-Briggs scale: r = -.44 (females) with a range of partial correlations (extraversion, neuroticism, and SN) from r = -.36 to -.45, and with respect to neuroticism, r = -.37 with a range of partial correlations (extraversion, EI, and SN) from r = -.32 to -.36.

No support was found for Hypothesis IV (p. 51). The dream sample of the Jung Society Group did not show a higher proportion of archetypal dreams than the dream samples of the other research groups, and the sample of subjects in psychotherapy involving dreams was too small (N = 3) to permit a separate test of the proportion of archetypality in the dreams of these people.

Dream Recall

Analysis of the relationship between dream recall and personality indicated that the dominant versus auxiliary distinction concerning the Jungian functions (cf. pp. 20-21) had little or no effect. For example, in the Dream Diary Sample, subjects whose dominant function was intuition (N = 11) recalled .18 archetypal dreams per diary night, whereas those subjects who had intuition as an auxiliary function (N = 13) recalled .19 archetypal dreams per diary night. Thus in the results reported below, only the direction and strength of the MBTI preferences, and not the dominance of the functions are taken into account.

Questionnaire Dream Recall Estimates

The correlations between questionnaire dream recall estimates and personality scores are presented in Table 18. These results confirm the first part of Hypothesis V (p. 51). Significant correlations were obtained for dream recall estimates with intuition, feeling, and introversion. The positive correlation with introversion held only for males on Eysenck's measure of introversion-extraversion. The correlation between interest in dreams (no, sometimes, yes) and questionnaire estimates of dream recall (low, medium, high) was $r = .43$ ($N = 144$, $p < .001$) again confirming the first part of Hypothesis V. As well, both intuition and feeling were positively related to interest in dreams, r's = .36 ($N = 144$, $p < .001$) and .22 ($N = 144$, $p < .005$) respectively.

Group comparisons for the dichotomous MBTI categories (Extraversion vs Introversion, Sensation vs Intuition, Thinking vs Feeling) and females vs males (cf. Table 19) indicated that people preferring intuition, people preferring feeling, and females, had significantly higher estimates of dream recall. Extraverts actually estimated recalling more dreams than introverts, but the difference, opposite to the predicted result, was not significant.

There were no significant differences between males and females with respect to sensation-intuition, thinking-feeling, or interest in dreams, and thus the higher dream recall estimates of females appear to be independent of these factors.

Dream Diary Recall

The findings with respect to dream diary recall and personality appear in Table 20. The number of dreams recalled per night (without regard to archetypality) correlated positively with degree of introversion (MBTI): $r = .33$,

TABLE 18

Correlation of Questionnaire Dream Recall Estimates With Personality Variables--Pearson's r

Sample	Eysenck Extraversion	Eysenck Neuroticism	Extraversion/ Introversion[1]	Sensation/ Intuition[1]	Thinking/ Feeling[1]
Total Sample N = 145	-.07	-.03	-.09	.19**	.24***
Females N = 84	-.01	-.01	-.12	.28***	.32***
Males N = 61	-.25*	-.15	.01	.10	.09

* $p < .05$, 1-tail
** $p < .025$, 1-tail
*** $p < .01$, 1-tail

[1]Myers-Briggs Continuous Scores

N.B. All correlations with Judging-Perceiving Continuous Scores were non-significant.

TABLE 19

Group Comparisons of Questionnaire Dream Recall Estimates for Extraversion-Introversion, Sensation-Intuition, Thinking-Feeling, and Sex

Group Comparison				Mann-Whitney U-Test		
1. Extraverts		Introverts				
Mean Rank	N	Mean Rank	N	U	Z	2-tailed p
78.41	61	69.07	84	2232.0	-1.35	.177
2. Sensation		Intuition				
Mean Rank	N	Mean Rank	N	U	Z	1-tailed p
62.22	62	81.05	83	1904.5	-2.729	.003
3. Thinking		Feeling				
Mean Rank	N	Mean Rank	N	U	Z	1-tailed p
64.75	60	78.82	85	2055.0	-2.029	.021
4. Females		Males				
Mean Rank	N	Mean Rank	N	U	Z	1-tailed p
80.47	84	62.71	61	1934.5	-2.567	.005

TABLE 20

Correlations of Dream Diary Recall (Density)
With Personality Variables: Pearson's r

Total N = 30 (Female N = 22, Male N = 8)

Dreams Recalled Per Diary Night	Eysenck Extraversion	Eysenck Neuroticism	Extraversion/ Introversion[1]	Sensation/ Intuition[1]	Thinking/ Feeling[1]
Total (M = .65, S.D. = .43)	-.28	-.20	.33**	.01	-.08
Females	-.16	-.04	-.02	.01	-.03
Males	-.64**	-.49	.63**	-.38	-.10
Everyday (M = .49, S.D. = .35)	-.22	-.09	.39***	-.15	-.06
Females	-.11	.12	.16	-.20	.01
Males	-.55	-.45	.61	-.45	-.11
Archetypal (M = .16, S.D. = .14)	-.29	-.39*	.05	.37***	-.11
Females	-.14	-.36	-.40	.46***	-.10
Males	-.76***	-.50	.57	-.13	-.06

* p < .05 (2-tail)
** p < .05 (1-tail)
*** p < .025 (1-tail)

[1] Myers-Briggs Continuous Scores
N.B. All Correlations with Judging-Perceiving Continuous Scores were non-significant.

$p < .05$, $n = 30$. The correlation with Eysenck's measure of Extraversion although in the predicted direction, did not quite reach significance: $r = -.28$, $p < .07$, $n = 30$. No significant relationships were found between total dream diary recall and the following variables: neuroticism, intuition, feeling, and sex (cf. Table 21). Thus in the Dream Diary Sample, only introversion, and not intuition or feeling, is related to the number of dreams actually recalled per night.

TABLE 21

Differences in Dream Diary Recall (Density) Between Females (N = 22) and Males (N = 8): t-Test

Dreams Recalled per Diary Night	M	S.D.	t-Value	p (2-tail)
Total				
Females	.59	.30	-1.35	.188
Males	.83	.68		
Everyday				
Females	.45	.27	-1.02	.317
Males	.60	.52		
Archetypal				
Females	.14	.12	-1.56	.129
Males	.23	.19		

However this relationship appears to be largely due to the males in the sample (cf. Table 20). Further analysis of this finding is ambiguous, as the number of males is small, although it was determined that the correlations for males and females do not differ significantly. It is likely that different type distributions for males and females, and limited samples of each of the types are the factors responsible for the male-female difference. Table 22 indicates the mean number of everyday, archetypal, and total dreams

TABLE 22

Dream Recall Per Night for Myers-Briggs Personality Types: Total, Everyday, and Archetypal Dreams

Type Category	Number of Subjects	Dream Recall Per Night		
		Everyday	Archetypal	Total
Extravert	13	.36	.16	0.52
Introvert	17	.59*	.17	0.76
Sensing	6	.44	.07	0.51
Intuitive	24	.51	.19*	0.69
Thinking	10	.61	.23	0.84
Feeling	20	.43	.13	0.56
Judging	12	.44	.13	0.57
Perceiving	18	.53	.18	0.70

N.B. * indicates difference between pair of types significant at $p < .05$, 1-tailed t-Test

recalled per night for the four personality type dichotomies in the Myers-Briggs system. Two points are relevant to the male-female difference noted above; first, six of the eight males had preferences for both introversion and intuition, which in combination are associated with high dream recall (cf. Appendix XXVI). The remaining two males had preferences for extraversion and intuition. Second, five extraverted females (ESTP and ENTP types) showed high dream recall. The limited sample of a number of the MBTI types precludes further analysis of sex and preference differences in total dream recall. Thus the clearest finding which emerges is that degree of introversion shows a moderate positive correlation with overall dream recall density.

The recall of everyday dreams (cf. Table 20) correlated positively with Myers-Briggs introversion: $r = .39$, $p < .025$, $n = 30$. Again this finding was stronger for males than for females, though not significantly so. All other correlations with the recall of everyday dreams were non-significant, and the relationship with introversion held when the effects of the other personality variables were partialled out (partial correlations--extraversion, neuroticism, SN, and TF--ranged from $r = .33$ to $.38$). As well, as compared to extraverts, introverts had significantly higher recall of everyday dreams per diary night (cf. Table 22, $t = 1.89$, $p < .05$, 1-tail, $df = 28$).

The prediction that the density of recall of archetypal dreams would correlate positively with introversion (Hypothesis III) was not supported for the Dream Diary Sample as a whole (cf. Table 20). However a significant correlation was obtained between archetypal density and Eysenck's extraversion ($r = -.76$, $p < .025$, $n = 8$) for males only. This is probably a reflection of the introvert's higher dream

recall per se. Taking into consideration the limited type sample of males, and the lack of a significant finding with respect to introversion for the Diary Sample as a whole (cf. also the extravert and introvert mean archetypal densities presented in Table 22), this finding must be viewed tentatively at present. The negative correlation between archetypal density and Myers-Briggs introversion for females may be due to the fact that there were seven females with a preference for both extraversion and intuition, and intuition appears to be the factor associated with high archetypal density.

As predicted in Hypothesis III, the recall of archetypal dreams was positively correlated with the degree of intuition ($r = .37$, $p < .025$, $n = 30$), and was independent of the other personality variables (partial correlations --extraversion, neuroticism, SN, and TF--ranged from $r = .35$ to .37). As well, the archetypal density means for the dichotomous groups sensation and intuition (cf. Table 22) differed significantly in the predicted direction, $t = -1.83$, $p < .05$, 1-tail, $df = 28$. The positive relationship between intuition and archetypal density was also significant for females, but not for males, which is probably due to the absence of any males with a preference for sensation (N.B. analysis of the relative importance of strength versus direction of MBTI preferences requires a very large sample and thus is not possible in the present study).

Contrary to the prediction made in Hypothesis III, neuroticism correlated negatively with archetypal density ($r = -.39$, $p < .05$, 2-tail, $n = 30$), a finding which was also independent of the other personality variables (partial correlations--extraversion, EI, SN, and TF--ranged from $r = -.33$ to $-.37$). However among the males this finding may have been influenced by a strong positive correlation between

Eysenck's extraversion and neuroticism scores (r = .78).

In summary the major findings for Dream Diary Recall are as follows:

1. The recall of dreams in general, and of everyday dreams in particular, is positively related to introversion.

2. The recall of archetypal dreams only is positively related to intuition.

3. The recall of archetypal dreams only is negatively related to neuroticism.

4. High recall of dreams in general is associated with the type combination of introversion and intuition.

Dream Content

Dream content variables were analyzed after being corrected for dream length. The following variables are thus expressed as densities per 100 words of dream report: settings (indoor, outdoor, ambiguous, total); and characters (male, female, joint, individual, groups, total, familiar, unfamiliar, animals, creatures). In calculating the total number of characters, small groups were considered to be four, and large groups, eight.

The descriptive statistics on report length for the four dream classes are presented in Table 23. As would be expected, the reports of the earliest dreams are much shorter than those of the vivid, recent, and diary samples.

TABLE 23

Means, Standard Deviations, and Ranges of Report Length (Words) for Dream Samples

Sample	M	S.D.	Range
Earliest	74.3	60.4	3 - 358
Most Vivid	141.3	153.6	7 - 932
Most Recent	175.3	155.9	5 - 912
Diary	163.1	142.0	5 - 861

Personal versus Collective Unconscious in Males and Females

No support was found for Hypothesis VI, regarding the ratio of male to female characters in the everyday and archetypal dream samples of the two sexes. Three possible explanations of this finding are:

1. The ratio measure is inappropriate, in that the masculine or feminine character of a dream is determined by the sex of the character having the greatest subjective impact or import in the dream; or,

2. Personal and Collective dream contents may only become separated through the progressive differentiation of images such as occurs during the course of an extended dream analysis; or,

3. Jung's propositions are incorrect in this respect.

Other Results

Approximately 360 tests of significance were computed in analyzing the effects of sex and personality differences on dream content variables for all four samples of dreams. Of these only 17 were significant (4.7%) at a 2-tailed probability level of $p < .05$. As this number of significant results can easily be obtained by chance, the following findings should be viewed tentatively.

Females had a significantly higher density of familiar characters than males (Most Vivid Sample: $t = 2.04$, $df = 103$, $p < .05$), and a significantly higher density of indoor settings (Dream Diary Sample: $t = 2.13$, $df = 28$, $p < .05$). Males had a significantly higher density of creatures than females (Most Vivid Sample: $t = -1.99$, $df = 103$, $p < .05$); however it should be noted that none of the female dreams in this sample contained creatures. The above sex differences in dream content are all consistent with the norms presented by Hall and Van de Castle (1966).

In the Most Vivid Sample, people with a preference for sensation as opposed to intuition had significantly higher densities of ambiguous settings ($t = 2.56$, $df = 103$, $p < .02$), familiar characters ($t = 2.37$, $df = 103$, $p < .02$), and characters ($t = 2.27$, $df = 103$, $p < .05$). As well people with a preference for thinking as opposed to feeling had significantly higher densities of male characters ($t = 2.87$, $df = 103$, $p < .01$).

Ten significant findings (11% of 90 tests) were obtained with respect to personality and dream content in the Dream Diary Sample (cf. Table 24). It is important to note that all of the significant differences were restricted to the Most Vivid and Dream Diary Samples, and that sex-type distribution effects are probably present. The only consistent finding across samples was the association of sensation preferences with higher densities of familiar characters. It is possible that this result may be sex-linked, as all Dream Diary subjects with a preference for sensation were females. This may also account for the association of sensation preferences with higher densities of indoor settings. As well the association of intuition with higher densities of unfamiliar characters may be due to the eight males with a preference for intuition, since Hall and Van de Castle's norms (1966) indicate that males have a higher proportion of unfamiliar characters in dreams than females.

Questionnaire Analyses--Other Results

Questionnaire items were analyzed for subsample, sex, and personality differences, as well as for inter-correlations between items. Approximately 180 tests of significance were computed and of these, 20 (11%) were significant at $p < .05$, 2-tailed test. There was a total lack of sex differences except as previously noted on dream recall estimates. The

only subsample difference was obtained on Item 36: 56% of the Jung Society group reported that water was often a significant element in their dreams, as compared to only 20% of the rest of the Dream Research Sample (X^2 = 12.13, df = 1, p < .001). This result may reflect the emphasis on the symbolic value of water imagery which is prevalent in Jungian dream interpretation.

TABLE 24

Pearson's Correlations for Personality Variables with Dream Content Variables

Dream Diary Sample

N = 30

Variable Pair	r
Extraversion (EPI) with Female Characters	.45**
Neuroticism with Words	.40*
Neuroticism with Outdoor Settings	-.54***
Neuroticism with Joint Sex Characters	-.39*
Sensation-Intuition (MBTI) with Words	.46**
Sensation-Intuition (MBTI) with Indoor Settings	-.44**
Sensation-Intuition (MBTI) with Familiar Characters	-.44**
Sensation-Intuition (MBTI) with Unfamiliar Characters	.36*
Thinking-Feeling (MBTI) with Creatures	-.39*
Judging-Perceiving (MBTI) with Words	.40*

* p < .05

** p < .025

*** p < .01

N.B. The content variable means for each subject's diary were used in calculating the correlations. All Myers-Briggs variables are based on continuous scores.

Estimates of dream recall correlated positively with ease of recall (Item 23, $r = .59$, $n = 144$, $p < .001$), presence and clarity of recall (Item 24, $r = .55$, $n = 140$, $p < .001$), and dream vividness (Item 30, $r = .28$, $n = 142$, $p < .001$). These findings point out that quantitative estimates of dream recall may be related to quality of recall and to the vividness of dream imagery.

Finally, questionnaire item relationships with personality variables are presented in Table 25 (N.B. Only correlations with an absolute value greater than or equal to .25 are reported).

TABLE 25

Pearson's Correlations for Questionnaire Variables with Personality Variables

Variable Pair	N	r
Neuroticism with Sleep Quality (Item 11)	145	.37**
Neuroticism with Passive/Active (Item 45)	139	-.34**
Neuroticism with Setting Familiarity (Item 46)	137	-.27*
Sensation-Intuition (MBTI) with Mood Post (Item 40)	142	.26*
Sensation-Intuition (MBTI) with Lucid (Item 41)	141	.29**
Sensation-Intuition (MBTI) with Dream Preference (Item 48)	139	.32**

* $p < .002$

** $p < .001$

These results indicate that higher neuroticism scores are associated with poorer reported sleep quality, and reports of passive behaviour in dreams, and fewer familiar settings in dreams. Stronger preferences for intuition are

associated with a preference for dreaming sleep, lucid dreaming (awareness of being in a dream experience), and a carry-over of dream moods into waking life.

Archetypality Measures--Other Results

With respect to dream content, higher archetypal scores were associated with longer reports (r = .26), fewer characters per word (r = -.18), and more animals per character (r = .15). N.B. These are the average r's for the four dream samples, calculated as noted below. It is impossible to say whether archetypal dreams are longer than everyday dreams, as subjects may simply use more words to describe emotionally-charged, irrational material. (This possibility may also account for the lower density of characters in archetypal dreams). But it is interesting to note the higher ratio of animals to human characters in archetypal dreams, which may reflect the less differentiated, more primitive aspects of the psyche.

As would be expected, archetypal dreams were associated with good recall (r = .29), vividness (r = .30), and high affect (r = .36) estimates on the dream diary questionnaire. The relationships with good recall and vividness were stronger for those subjects with intuition preferences.

The correlations between archetypality and affect, rationality and everydayness (for all dreams) were .58, -.79, and -.78 respectively. These r's were calculated by computing separate correlations for each of the four dream samples and then taking the average of the Fisher's Z Transformation values, in order to determine an average r. The inter-correlations for the three scales (calculated in the same manner) were as follows: affect with rationality: -.22; affect with everydayness: -.36; and rationality with everydayness: .74.

Summary of Results

1. As predicted (Hypothesis I), earliest and most vivid dream samples showed a significantly higher degree of archetypality than the most recent sample of dreams. These findings were in close agreement with those of Kluger (1975).

2. The proportions of archetypal dreams in the most recent and diary samples were virtually identical (approximately 24%).

3. As predicted (Hypothesis II) the degree of archetypality in the most recent sample of dreams was positively correlated with intuition, but for men only; no support was found for the predicted relationship with introversion or neuroticism.

4. As predicted (Hypothesis III) in the diary sample the density of recall of archetypal dreams (per diary night) and the proportion of dreams recalled which were archetypal were positively correlated with intuition. However, contrary to prediction, there was a significant negative correlation between these measures and neuroticism. The predicted relationship between these measures of archetypality and introversion was supported for males only, probably a reflection of dream recall per se. The female group actually showed a positive relationship with extraversion (MBTI only), which possibly indicates greater ease of recall for archetypal dreams, or more archetypal dreams in the dream life of extraverted females.

5. No support was found for Hypothesis IV, as the dream sample of the Jung Society group did not show a higher proportion of archetypal dreams when compared to the rest of the research sample. As well the effects of psychotherapy on the archetypal content of dream samples could not be

adequately tested due to the limited number of people in psychotherapy in the dream research sample.

6. As predicted (Hypothesis V) the recall of dreams in general, and of everyday dreams in particular, was positively correlated with introversion. However no support was found for the predicted relationship with intuition or feeling. High recall of dreams in general was associated with the Myers-Briggs type combination of introversion with intuition.

7. As predicted (Hypothesis V) questionnaire estimates of dream recall were positively correlated with introversion (EPI, males only), intuition, feeling, and interest in dreams; and females had significantly higher estimates as compared to males. Interest in dreams was positively correlated with intuition and feeling.

8. No support was found for Hypothesis VI concerning the ratio of male to female characters in the everyday and archetypal dreams of men and women.

9. Females had higher densities of familiar characters and indoor settings in their dreams than males. As well, sensation was associated with higher densities of familiar characters and indoor settings and lower densities of unfamiliar characters as compared to intuition (these findings are probably sex related as all diary sample sensation types were females).

10. Thinking was associated with higher densities of male characters as compared to feeling.

11. Neuroticism, intuition, and perceiving were positively correlated with the number of words used in dream reports, and this may have contributed to a number of the personality-dream content findings, as all variables were corrected for words. Neuroticism was also negatively correlated with the density of outdoor settings in dreams.

12. Questionnaire dream recall was positively correlated with ease of recall, presence and clarity of recall, and dream vividness as measured by questionnaire. Intuition was associated with a preference for dreaming as opposed to dreamless sleep.

13. Archetypal dreams are associated with longer reports, lower densities of characters per word, higher densities of animals per character, and diary questionnaire estimates of good recall and vividness (this effect is stronger in people with higher intuition scores).

N.B. The author considers the results noted under 2, 3, 4, and 6, to be the major contributions to original knowledge.

DISCUSSION AND CONCLUSIONS

The results of this study provide strong empirical support for Jung's theory of the psyche as related to dreams and personality. The findings show that it is possible to quantify the degree of archetypality in dreams reliably, and that this dream content dimension is related to dream recall and personality structure in a meaningful manner. Given the complex interactions between personality, dream content, and environmental factors (Carlson and Levy, 1973; Cohen, 1977), and the fact that the effects of the subject's environment were uncontrolled in this study, the number of significant relationships which were predicted and obtained is notable. Although the strength and consistency of these findings were undoubtedly moderated by environmental variables, over 60% of the hypotheses were confirmed. This points out the importance of personality characteristics in dream content, and supports Dallett's conclusion that "differences as a function of environment begin to emerge only when subject variables are taken into account" (1973a,

p. 83). The following discussion consequently emphasizes the importance of individual differences while focusing on the degree of archetypality in dreams as related to dream sampling methodology, recall processes, dream content, personality characteristics, and individual adaptation. Finally, Jung's theories are integrated with theories on the neurophysiology of dreaming, and a summary of the contributions of this study as related to future directions in dream research is presented.

Archetypal and Everyday Dreams in the Life of the Individual

It appears from the results of this study and Kluger's study, that the reported dream samples of non-psychiatric populations (students, general public) contain approximately 20--25% dreams with at least a moderate degree of archetypality. There are however marked individual differences in the incidence, or the recall and/or the reporting of archetypal dreams. These factors will be discussed in detail below, and it is interesting to note at this point that Kluger's finding of 38% archetypal dreams among analysands (1975, p. 32) may well be a function of the personality characteristics of that sample, as well as of the effects of analytic therapy on the individual's dream life. A number of other factors also influence the frequency of archetypal dreams in dream research samples, and thus the most important--sampling methodology, recall and reporting factors, and content characteristics of archetypal dreams--must be considered before the role of personality can be clearly evaluated.

Differences in Dream Samples

When the earliest and most vivid dream samples were compared with the most recent and diary samples, striking differences in the degree of archetypality were found. Thus

the success of the methodology (requesting various specific dreams from subjects) in isolating dream samples of varying degrees of archetypality indicates that the choice of which dreams to report can have major implications for the results of dream research studies. Apart from the fact that the earliest dream reports were considerably shorter than those of the other samples, there were only a few consistent personality relationships across the different samples. For example, intuition was positively correlated with archetypality in the most recent (men only) and diary samples of dreams, but not in the earliest or most vivid samples. In fact, there were no significant relationships between any personality variables and archetypality in the earliest and most vivid dream samples. Furthermore the relationship between intuition and archetypality was weaker in the most recent sample as compared to the diary sample. A probable explanation is that all people have archetypal dreams, and when asked to recall earliest dreams, all personality types are equally likely to report archetypal dreams--which are more easily recalled over time due to their affective intensity and difference from everyday life. As well, most people would judge their archetypal dreams to be more vivid than the everyday variety and consequently would report them for a "most vivid" sampling. The attenuated relationship between intuition and archetypality in the most recent sample is probably due to the variance in the time of the sampling probe relative to the individual's archetypal/everyday dream distribution. Thus it appears that sampling methodology (particularly one-shot sampling techniques) in dream research can obscure and even overwhelm personality-dream content relationships.

Although uncontrolled studies require large subject samples to randomize the effects of environmental stress on

dream life, an important methodological finding emerged from this study. That is, it is possible to obtain a cross-sectional recent dream sample which matches a longitudinal dream diary sample with respect to the distribution of archetypality. This means that it may be possible to compare the distributions of archetypality in the dreams of different subject populations, quickly and easily. A further question must be raised however: How representative are such cross-sectional and longitudinal distributions (home dreams) of the distribution of archetypality for sleep laboratory dream samples? This needs to be investigated empirically, and it is very important to the understanding of recall and reporting bias as related to archetypality in dreams. Nevertheless it is worth noting that two well-known dream researchers, C. S. Hall and C. A. Meier (a Jungian analyst and dream laboratory researcher) are of the opinion that laboratory dreams are very rarely of an archetypal nature, and that the laboratory may inhibit "big" dreams. (Personal communications, 1978). If future research supports this contention, the difficult question of how many archetypal dreams an individual actually has will remain to be answered.

Recall and Reporting Factors

Distinct from the effects of the environment on dream content (which will be treated below in the section on personality) there are a number of recall and reporting factors which may have influenced the results of this study. First, there is a significant tendency for introverts, feeling types, and especially intuitives, to be more interested in volunteering as dream reporters. In particular this study probably does not provide representative measures of dream recall and dream content for people with sensation preferences. Second, the effects on recall processes of changes in

motivation and in the subject's situation and anxiety at awakening were not evaluated. It is important to remember these limitations, but they do not create any serious difficulties for the interpretation of the results, as the intention of this study was to investigate the relationship between personality and dreams under as natural and uncontrived conditions as possible. In general it has been assumed that the subject's environment is to some degree a function of personality, and thus the results should reflect a relationship between dreams and personality even in uncontrolled situations. The findings support this assumption, and it is most likely the strength of the established relationships which has been affected by day-to-day changes in the subject's environment and emotional state.

A more serious problem is the role which reporting bias may have played in the results of this study, i.e. do we have realistic measures of what dream content is actually recalled in consciousness? The avoidance of disturbing or strange dream material or an unwillingness to report it could have resulted in biased dream samples from certain personality types. Although this would be interesting in and of itself, the plausibility of such an explanation must be carefully weighed, as it would lead us to a very limited interpretation of the results.

Obviously no certain or final answer can be given to this question, as subjects always have the option of reporting no recall, even in a laboratory study when they can be awakened during REM sleep. However, rather than infer conscious falsification, it is more parsimonious to assume that subjects make as reliable reports as possible. This appears to be borne out in this study, as all subjects reported archetypal dreams and everyday dreams containing very personal material and high levels of affect. Feedback from subjects indicated that motivation was uniformly high, and

instructions were followed carefully. As well all subjects were assured of complete confidentiality and given explicit instructions to report all mentation content recalled (cf. Appendix IV, 2, E). Under these conditions it appears that non-reporters are indeed non-recallers (Goodenough, 1978). Goodenough also notes that the content of non-reporters' dream reports makes them less recallable, which could be due to poor recall or vague reporting, or to the salience (archetypality) of their dreams. In fact, in the present study, subjects who reported fewer archetypal dreams also reported these dreams as less vivid and emotional in impact than did other subjects. Thus it appears more reasonable to assume that differences in memory processes and/or the nature of an individual's dream experience account for the obtained results.

Characteristics of Archetypal Dreams

What are the characteristics of archetypal dreams and how do these relate to the findings of this study? First of all, two similar qualities, remoteness from everyday experience and irrationality appear to be the characteristics which most clearly differentiate archetypal from everyday dreams. Strong affect is usually present in archetypal dreams; however everyday dreams often show high levels of affect as well. Archetypal dreams may be longer, have higher densities of animals per character, and are likely to be more vivid and more easily recalled. But it should be noted that hallucinatory clarity and vividness do not imply dream bizarreness. For example, an extraverted intuitive female subject reported a dream with very vivid sensory clarity which had low affect and very everyday content. As well, subjects with a preference for sensation did not rate their archetypal dreams as that much more vivid or easy to

recall than their everyday dreams. Thus two points emerge: there are only a few content differences between archetypal and everyday dreams on the measures used in this study, and there are distinct individual differences in the nature of archetypal dream experience or in the memory processes involved in the recall of dreams.

Returning to the point that dream recall is affected by dream content: How then can we define and conceptualize the irrationality and remoteness from everyday experience of archetypal dreams? The answer was provided by Jung when he said, "an archetypal content expresses itself, first and foremost, in metaphors" (CW Vol. 9, 1, p. 157). This idea was discussed earlier (pp. 5-7) and has been dealt with extensively by Hillman (1975) who noted that "archetypes are semantically metaphors" and that "metaphors transfer meaning" (p. 156ff). Hall and Nordby (1972) proposed differentiating denotative (representational) and metaphorical symbols in dreams. They suggested that metaphorical symbols could be identified by the appearance of a bizarre or unusual image, or of something that seems to be illogical in a dream, or by the repetition of an uncommon element in a series of dreams (p. 77). Thus one could say that archetypal dreams are more metaphorical and everyday dreams more representational.

Billow (1977) defines metaphor as a psychological phenomenon in which ideas interact or "interpenetrate" one another with meaning. He notes that "recent studies suggest that comprehension and production of rudimentary forms of metaphor appear in early childhood" (p. 81). He also proposes that metaphor arises from correlations among experiences, and that the economy of expression which characterizes metaphoric images may aid in memory by mediating in the formation of associative connections. (The relationship

between metaphor and dream recall will be discussed below.) Hall and Nordby have stated that "metaphor is particularly useful when we wish to express a complex of meanings and feelings by a simple economical expression or image," and further that "a metaphorical symbol may also encompass opposing ideas . . . or feelings |and thus is| filled with dramatic tension" (1972, p. 64). These ideas on metaphor are close to Jung's views on the archetypes, and express very well his conception of the constellating and organizing forces reflected in archetypal dream imagery.

The following passage by Hillman (1975) provides a good summary of the archetypal metaphoric perspective and an introduction to the discussion of archetypal dreams and their relationship to personality and adaptation.

> Let us then imagine archetypes as the deepest patterns of psychic functioning, the roots of the soul governing the perspectives we have of ourselves and the world. They are the axiomatic, self-evident images to which psychic life and our theories about it ever return. They are similar to other axiomatic first principles, the models or paradigms that we find in other fields. For "matter," "God," "energy," "life," "health," "society," "art" are also fundamental metaphors, archetypes perhaps themselves, which hold whole worlds together and yet can never be pointed to, accounted for, or even adequately circumscribed.
>
> All ways of speaking of archetypes are translations from one metaphor to another. Even sober operational definitions in the language of science or logic are no less metaphorical than an image which presents the archetypes as root ideas, psychic organs, figures of myth, typical styles of existence, or dominant fantasies that govern consciousness. There are many other metaphors for describing them: immaterial potentials of structure, like invisible crystals in solution or form in plants that suddenly show forth under certain conditions; patterns of instinctual behavior like those in animals that direct actions

> along unswerving paths; the genre and topoi in literature; the recurring typicalities in history; the basic syndromes in psychiatry; the paradigmatic thought models in science; the world-wide figures, rituals and relationships in anthropology.
>
> But one thing is absolutely essential to the notion of archetypes: their emotional possessive effect, their bedazzlement of consciousness so that it becomes blind to its own stance.
>
> The archetypal perspective offers the advantage of organizing into clusters or constellations a host of events from different areas of life. The archetype of the hero, for example, appears first in behavior, the drive to activity, outward exploration, response to challenge, seizing and grasping and extending. It appears second in the "images" of Hercules, Achilles, Samson (or their cinema counterparts) doing their specific tasks; and third, in a style of consciousness, in feelings of independence, strength and achievement, in ideas of decisive action, coping, planning, virtue, conquest (over animality), and in psychopathologies of battle, overpowering masculinity, and single-mindedness." (p. xiii-xiv)

Having considered the issues of methodology, reporting factors, and the nature of archetypal dreams, we come now to the role of personality in understanding dream recall, dream content, and adaptation.

Personality Structure and Adaptation

It is evident from this study that introverts recall more everyday dreams than extraverts, intuitives more archetypal dreams than sensation types, and high neurotics fewer archetypal dreams than low neurotics. As will emerge during the course of this discussion, these findings are consistent with Jung's theories and with research on the adaptive functions of dreaming.

Remembering that the archetypes may be characterized as the more pressing and pervasive emotional and behavioural

patterns at the core of an individual's psychic health and balance, greater recall of archetypal dreams probably indicates: (a) greater awareness of and/or involvement in these deep structures in process, e.g. greater responsiveness to adaptive demands; and (b) conscious frameworks appropriate to the storage, recall, and processing of metaphorical archetypal dream contents; or (c) high levels of stress reflected in a greater demand for adaptation and/or a greater need for processing of a psychologically adaptive nature. Evidence in support of a relationship between dreaming and adaptive waking behaviour may be found in a recent review by McGrath and Cohen (1978). They found only equivocal evidence for a preparatory function of REM sleep (which may be moderated by individual differences), but concluded that there was "much more consistent and compelling evidence that REM sleep does, in fact, facilitate retention of learning and/or adaptation to stimulation," and that "the processing of more complex and/or emotionally valent and personally involving (e.g. anxiety-arousing, ego-threatening) material may be dependent on REM sleep" (p. 52, c.f. also Greiser et al, 1972). They also suggested that the nature of the metaprogramming which may occur during REM sleep is probably determined by the individual's needs. Thus at least REM dreaming is likely to be related to the assimilation of unusual and emotionally significant information. It is also interesting with respect to archetypal dreams, that Baekeland et al (1968) found high REM density to be associated with anxiety (from exposure to an anxiety-arousing film), and REM density has been found to be positively correlated with the bizarreness, vividness, intensity, and emotionality of dream reports (McGrath and Cohen, 1978, p. 49; cf. also Goodenough et al, 1975). It is possible

therefore that archetypal dreams reflect attempts to restore the intrapsychic balance and reorient the external stance of the individual to reality. Everyday dreams on the other hand may reflect processing of personal material which involves less reorganization of the deep structures of psychological functioning.

Extraversion-Introversion

The higher everyday and overall dream recall of introverts as compared to extraverts supports the views of Jung and Eysenck on the nature of introversion-extraversion. With increasing introversion the dominant orientation and focus is towards inner processes, and there appears to be a concomitant facilitation of memory for dreams, especially those of a representational and everyday character. Increasing extraversion, however, orients the individual towards interactions with the outer environment, which does not facilitate the recall of everyday dreams. These individual differences are based on personality functioning and can be understood as involvement with different modes of expression of the personal levels of the psyche. Thus in personal, "surface programming," the introvert interacts more with the inner mode, the extravert more with the outer. This is not to say that the introvert doesn't process information and interact with the outer mode, and vice-versa for the extravert, only that the opposite orientation is more unconscious and less attended to. It should be stressed here that both orientations are valuable and function adaptively, although one may be more appropriate in particular environments or stages of life.

The recall of archetypal dreams does not show a consistent relationship with introversion-extraversion. This

could be a function of the powerful impact of such dreams, or indicate an increased inner emphasis on activity in the archetypal processes of the psyche. (It is also possible that male introverts and female extraverts may have or recall more archetypal dreams due to increased stress from opposing cultural role demands for males and females.) In any case, it appears that both introverts and extraverts have the conscious frameworks for dealing with the metaphorical contents of archetypal dreams.

Sensation-Intuition

A most important finding of this study is that intuition is associated with higher recall of archetypal dreams than sensation. However there are no differences between these types for everyday or overall dream recall. This supports Jung's contention about intuitives, but with one important qualification: intuitives are indeed closer to the unconscious than sensation types, but only and specifically to the dream manifestations of the collective unconscious. Since sensation types report their recall of archetypal dreams as less clear and less vivid than do intuitives, these findings probably indicate that the function of intuition is associated with the cognitive ability and coding style necessary for dealing with archetypal dream experiences. The practical, factual orientation and need for order of the sensation types may lead them to find archetypal dreams disturbing and difficult to process (cf. Bosinelli, 1975). Intuitives, on the other hand, with their tolerance for complexity and change, imaginative and creative tendencies, and interest in dreams, probably find it much easier to process consciously the metaphorical characteristics of archetypal dreams (cf. also Kramer, 1977, on the relationship

between dream recall and the experience of ambiguous material as meaningful). Billow (1977) is of the opinion that "it is precisely the nonrational or unconscious mental system that motivates metaphorical expression" (p. 87), and notes that some children appear to excel at metaphorizing while others do not. Thus, such individual differences may appear in childhood when there is greater participation in the imaginative processes of the unconscious. Metaphors may have adaptive value, by helping the individual to integrate and correlate the complexities and experiences of life, and as such, this mode of perceptual, emotional organization could coexist with other cognitive processing skills as a helpful mode of adult functioning (cf. Billow, 1977, p. 89).

A more differentiated picture of intuition now emerges: A personality structure characterized by close contact with the deep levels of the unconscious, and the cognitive processing skills necessary for integrating the metaphorical material which reflects the processes of the objective psyche. The question which now arises concerns the relationship of dreams to creativity and adaptation. James Hall's (1977) description of the personality dynamics surrounding creativity provides a good introduction to this area: "the creative person requires access to unconscious material together with ego strength sufficient to contain the unconscious pressure and weave it into a conscious form . . . in most instances the unconscious pressure of dreaming may be tailored to the ability of the ego to tolerate stress, under the control of the central archetype process" (p. 241).

Neuroticism

We come now to the question of how the results of this study relate to personality and adaptation. Although

opposite to the prediction made concerning the relationship between archetypality and neuroticism, the finding that high neurotics recalled fewer archetypal dreams than low neurotics can be supported both by theoretical formulations and experimental evidence. From a Jungian point of view, this result appears to indicate that the dreams of high neurotics may be more restricted to individual contents, i.e., related to the personal unconscious (as compared to collective, i.e. related to the objective psyche). As Jung noted, "in reality we can never legitimately cut loose from our archetypal foundations unless we are prepared to pay the price of a neurosis, any more than we can rid ourselves of our body and its organs without committing suicide" (CW Vol. 9, 1, p. 157). Thus if neurosis is a dissociation of ego consciousness from its psychic roots, one might expect reduced contact with the manifestations of archetpyal processes. The above finding fits well with this interpretation and the picture of the neurotic as trapped in too narrow or limited (personal) an attitude from which the only release is through relationship with the collective unconscious (Personal communication from Dallett, who is a Jungian analyst and was Kluger's second rater, 1978).

There are a number of possible explanations of the decreased recall of archetypal dreams among high neurotics. With their low tolerance for stress, low ego-strength, and defensiveness, they may be unable to deal consciously with archetypal processes, and thus repress archetypal dreams. This is consistent with Bosinelli's (1975) point that some people have a fear of regression or leaving their usual conscious framework, and thus find discontinuous and changing experiences disturbing since they hold the threat of fragmentation and destructuration. Hall (1977, p. 241)

cited Kalsched (1972) who found that those scoring high on "adaptive regression" recalled more dreams, and their dreams were longer and contained more bizarre, uncanny, and illogical material. It is thus possible that high neurotics experience the strange and gripping forces of the archetypal processes in the psyche as very ego-threatening, and shut them out of consciousness. It will be difficult to determine whether this is the case, or whether as suggested above, the process of dreaming is tailored to the strength of ego-consciousness by the archetype of the Self. This latter explanation implies that high neurotics not only recall fewer archetypal dreams, but actually have fewer.

Regardless of the explanation one prefers, it is evident that high neurotics are less consciously involved in "deep level" programming as evidenced in dreams. Since their tendency to rigid sequences of behaviour and emotional over-reactivity may inhibit new learning and maintain faulty habit patterns, they are probably less adaptable than low neurotics. There is in fact a good deal of research concerning REM sleep and stress which supports this contention. As McGrath and Cohen (1978) concluded (cf. also Greenberg et al, 1972), there is evidence that REM sleep facilitates the integration of and adaptation to stressful experiences. However in studies on REM deprivation and REM sleep characteristics under stress, marked individual differences have appeared. The crucial personality factor which has emerged from these studies is repression-sensitization, or neuroticism. The findings are consistent, and indicate that low neurotics show greater REM density and longer REM periods following non-REM deprivation than high neurotics (Schulz and Schunicht, 1973); for low neurotics only, dream content is intensified (in terms of dreamlike fantasy ratings) after REM deprivation (Pivik and Foulkes, 1966); low

neurotics show greater REM rebound than high neurotics following REM deprivation (Nakazawa et al, 1975; N.B. this result may have been confounded with introversion-extraversion, as all the low neurotics were extraverts, and most of the high neurotics were introverts); stressful pre-sleep experience is associated with higher REM density for low neurotics only (Cohen, 1975, cited in McGrath and Cohen, 1978); and low neuroticism subjects show a decrease in REM onset latency following REM deprivation (Cohen, 1977, p. 158). In summary, it appears that REM sleep in low neurotics is more responsive to environmental manipulations and may be more important to them, than to high neurotics. As Cohen (1977) concluded in an excellent review on the interaction between neuroticism, stress and dreaming sleep, "under 'normal' conditions, low neuroticism individuals make more exclusive use of the dreaming period, while under 'artificial' |i.e. experimentally induced stress, or REM deprivation| conditions, they demonstrate a greater motivation to compensate for restricted REM by intensification of the REM process (shortened REM onset latencies, greater REM rebound, intensified dream experiences" (p. 153). If, as it appears, dream salience (or archetypality) is related to the intensity of the REM processes (e.g. REM density is positively correlated with the bizarreness, vividness, intensity, and emotionality of dream reports as noted above), it thus becomes likely that low neurotics recall more archetypal dreams partly because they have more of these dreams. This line of reasoning has obvious implications for the understanding of the relationship between intrapsychic processes, environmental stress, and adaptability in the individual. The most reasonable conclusion at the present time is that in the case of high neuroticism, the over-responsiveness of the intrapsychic system to environmental

stress produces powerful interference patterns which inhibit archetypal programming on the "deep structure" levels. At such times, the homeostatic mechanisms of the objective psyche may be shut down in order to maintain stability on the deeper levels, and processing only occurs on the surface or personal levels of the psyche. In a sense, the conscious system of the low neurotic is more balanced (less one-sided), and integrated adaptive processing is possible between the personal and the archetypal levels of the psyche; whereas in the high neurotic a negative feedback mechanism (activated by unwarranted severe imbalances in the conscious system) prevents activation of archetypal processing which might be maladaptive, and certainly could not be integrated into ego-consciousness.

The value of this view is well expressed in the following passage by Frey-Rohn (1976), which provides a fitting conclusion to this section.

> Jung regarded the capacity of the archetypal image to stir and transform the conscious ego as one of its most significant qualities. To realize this aim, however, required the cooperation of the ego.
>
> The archetypal image . . . represented an inner opposite to the ego, which was prominently characterized by a challenge for self-reflection. Such a demand, however, called for a responding subject, namely the conscious ego-personality. The image was only the raw material which needed to be translated into the language of a specific era.
>
> Just as the archetypal modes of experience demanded shaping by the ego in order to approach the human sphere, so consciousness needed the depth of the psyche for creative thought. While the expansion of consciousness was tied to the creative opposite, contrariwise, the realization of the "self" was dependent on intellectually and morally integrating the potentialities of the image into consciousness.
>
> The perspective of higher and impersonal

> elements in the psyche, as well as creative and balancing forces inside the person, was suited to expand the personalistic point of view. From this angle symptoms could be traced to the individual's life history by including the impersonal structural elements of the psyche. Jung thus gained a tool which effectively liberated the neurotic from his personal entanglements, rescued him from his isolation, and directed his gaze into the impersonal forces in life. This tool, to be sure, was productive and helpful only in the hands of one who had a subtle ability to discern between the contents which belonged to the personal psyche and those which had to be attributed to the impersonal. (pp. 96-97)

Practical Implications

This study has implications for a number of areas of dream research. In general it indicates that there are a number of viable alternatives to the time-consuming methodology of laboratory dream collection. Such uncontrolled collection procedures must, however, be used carefully, when appropriate to specific research questions, and taking into consideration their limitations. With respect to personality measurement, the findings provide support for the construct validity of the Myers Briggs Type Indicator. Nevertheless the role and determination of function dominance still requires investigation; and more importantly, the relationship of preference strength to degree of function development needs to be studied in order to evaluate the MBTI more clearly.

Memory Processes

Dreams occupy a strange two-sided position in the study of memory: they not only involve memory programming, but must also be recalled in order that we can study this programming. Bertini (1973) believes that "the role of

REM sleep in relation to memory processes is not so much one of 'consolidation,' but more a role in the organization and elaboration of retained impressions within existing schemata which are crucial to adaptation" (p. 61). He also proposes that feelings and emotions are some of the tools used to classify and organize the information and programmes to be stored and altered (p. 62). If this is the case, then recalling dreams may be a function of awareness for feelings and emotions which could trigger dream memories. Thus whereas conscious cognitive schemata, dream salience, anxiety-produced distractions at awakening, and repression all influence dream recall, the mechanism of recall may require effective storage and coding, and the availability of retrieval cues on awakening. Just such a model has been proposed by Koulack and Goodenough (1976; cf. also Goodenough, 1978). They suggest that dream information may be transferred to long-term storage during sleep, but in a form that is difficult to access since it has not been cognitively processed in short-term memory. If dreamer arousal occurs during the short-term trace, this not only provides access to immediately preceding material, but also provides a retrieval cue to the long-term store. Conscious involvement in memory consolidation although helpful, may not be necessary to dream recall. This may only require the ability to retrieve dream memories on the basis of an appropriate imagistic or affective cue from the dream experience, or even from the experiences of waking life. It will be of particular interest to see if further research based on the arousal-retrieval model of dream recall can help to clarify the precise factors which result in higher everyday dream recall in introverts.

Clinical Work with Dreams

This study was not conducted in a clinical setting, nor

on a clinical population. As such, I will not attempt to generalize the results into these contexts, but will restrict myself to a few points which may warrant future inquiry. We know from the literature on sleep and dreams that "many pathological conditions modify sleep and further that sleep may exacerbate a pathological condition" (Webb and Cartwright, 1978, p. 229). As well, there are marked individual differences in the nature and psychological significance of REM sleep and dream content (Hartmann et al., 1972; Lairy, 1975; Kramer et al., 1976; and Webb and Cartwright, 1978). For example, there are individual differences in sleep stage characteristics (e.g. different densities of phasic events in REM and non-REM sleep), and Zimmerman (1970, cited in Webb and Cartwright, 1978, p. 237) found that light sleepers may report dream-like fantasy from non-REM sleep almost as often as they do from REM sleep. A more startling example of such variations has been provided by Lairy (1975) who noted that a mental void may exist in chronic psychotics whose REM sleep is rich in phasic events, and further speculated that this might indicate that a dissociation between neurophysiological and psychological events had developed during the evolution of the psychotic process. Similarly the dream processing of depressives appears to be chronically disturbed and does not improve when depression lifts (Webb and Cartwright, 1978, p. 241); some individuals may even show increased non-REM dream reports associated with presleep dysphoric mood (Brown and Cartwright, 1978). All of these examples serve to emphasize that the functional significance of dreaming depends on the broader context of the individual's psychological functioning in life.

Therefore, when we study everyday and archetypal dreams, we must also study the individual context: everyday

dreams may represent useful personal programming for one person, and maladaptive programming for another, in that affects and experiences have not been metaphorically integrated at an archetypal level. This is particularly relevant to the study of dream content in neurosis, and one might predict that as a neurosis is worked through, there should be an increase in the frequency of archetypal dreams. A final point: When the question of compensation is raised, although dreams may be continuous with waking behaviour and emotional states, this does not imply that the dreamer is consciously aware of or able to integrate these elements when awake.

Dream Research

The methodology of content analysis is a powerful tool with which to study dreams, but it needs to be constantly refined and adapted to the psychological nature of dreams. Apart from further work on the scales used to measure archetypality, which is certainly warranted, it is necessary to reexamine the manner in which we study dreams in general and archetypal dreams in particular. This fundamental issue has been brought into clearer relief, as very few content differences were found between everyday and archetypal dreams. We have come here to the limitations of a method which focuses only on dream elements or images, or even on a series of separate interactions. Yet there are important distinctions between everyday and archetypal dreams--the problem is how to conceptualize and study these differences. Hillman (1978) noted that dreams are not just associated components, but rather meaningful patterned sequences. This perspective provides the answer to our problem, and was stressed by Jung as more important than the simple classification of dreams: "It seems to me that the 'typical

motifs' in dreams are of much greater importance since they permit a comparison with the motifs of mythology. . . . I would like to emphasize that the comparison of typical dream-motifs with those of mythology suggests the idea--already put forth by Nietzsche--that dream-thinking should be regarded as a phylogenetically older mode of thought" (CW Vol. 8, p. 247). This viewpoint also has implications for the study of personality, as was expressed by Hillman: "For Jung, myths describe the behaviour of the archetypes; they are dramatic descriptions in personified language of psychic processes. As universal presentations of psychological dilemmas, myths are the basics of archetypal psychology. . . . The ultimate context of personality are the myths which the personality is enacting" (1978, p. 180).

Accordingly, the next step in this line of dream research is to return to Kluger's approach of a general judgment of mythological parallels, but in a more differentiated and objective manner. Once the archetypal dream has been identified, we can then delineate, define, and investigate specific archetypal situations (e.g. heroic struggle, initiation, abandonment, etc.) as the meaningful themes, patterns, and processes of the human psyche.

> The task of dream research becomes one of extracting these motifs, comparing them among different dreamers in different analyses, or the same dreamer across a span of time, investigating the motifs to find if there is a sequential order or perhaps a developmental process (according to standards of qualitative change), relating them to age, sex, level of psychological culture, symptomatology, and the like, of the dreamer.
>
> Our method then is to grasp phenomenologically the action sequence and to conceptualize it as a mythologem. (Hillman, 1978, pp. 205-206)

Jungian Theory and the Neurophysiology of Dreaming

This section presents a preliminary integration of Jung's theories on dreams and the psyche with the tonic-phasic model of sleep and dreaming (cf. Grosser and Siegal, 1971). It should be remembered that this is a tentative proposal, as the correlations between physiological models and sleep mentation are far from strong, and the role of individual differences in the consistency of findings remains to be clarified. The basic contention is that the archetypality of dream content is a crucial characteristic of dreams which reflects underlying neurophysiological processes. However, this relationship is likely to be complex, and it will probably be necessary to study and compare not only discrete events, but also the patterns and contexts of dream content and dreaming processes.

Benedetti (1975) proposed that "the possibility of transforming psychobiological tensions into images which objectify them, which allow them to be grasped and worked through, is a basis for the integration of the ego, a foundation of ego integrity. . . . It may be that the transformation of biological tensions into dream images is the starting point of psychic life" (pp. 125-126). This view provides the context for studying the dream-dreaming relationship and the highly individualized processes of the development of the Self. As has been stressed, individuation is an active process of the psyche requiring conscious involvement, differentiation, and integration. Bertini (1975) noted that there may be consistent individual differences in the pace of such processes, citing work by Cartwright et al (1967) which showed that as compared to field dependent subjects, field independent subjects had more florid dream mentation and more REM rebound after deprivation (p. 136). Noting that field

independent subjects appear to have more discriminative, specific arousal systems and more differentiated sleep/awake mentation, he concluded that this might reflect the degree of complexity and differentiation of the overall psychobiological structure (p. 138). It follows that as future research attempts to delineate psychophysiological parallels, it must do so within the context of individual differences in developmental and adaptive processes.

Taking up once more the idea that everyday and archetypal dreams reflect different levels or modes of psychic functioning, how can this be integrated with the research on sleep and dreaming? A beginning was provided by Kirsch (1968) when he proposed that there was more archetypal content in REM than in non-REM mentation, and that there were even differences between REM dreams. This idea has been supported by the finding that "eye movement activity during REM sleep has also been related to dream bizarreness (Goodenough et al., 1965b), and to intensity and emotionality (Hobson, Goldfrank, and Snyder, 1965; Karacan, Goodenough, Shapiro, and Starker, 1966; Molinari and Foulkes, 1969; Takeo, 1970; Verdone, 1963, 1965)" (Goodenough, 1978, p. 120). A number of researchers have proposed that it is phasic events during sleep (e.g. REM, pontine-geniculate-occipital spikes, periorbital integrated potentials, middle ear muscle activity, etc.) which correspond to the bizarre, salient characteristics of dreams (cf. Van de Castle, 1971; Grosser and Siegal, 1973). Webb and Cartwright (1978, p. 239) cited the work of Watson (1972) and Rechtschaffen (1972) which showed a relationship between phasic events and dream bizarreness, as support for this view. The research of Molinari and Foulkes (1969) is also consistent with this interpretation. They studied phasic events as related to different aspects

of sleep mentation: secondary cognitive elaboration (SCE) and primary visual experience (PVE). The findings supported a relationship between phasic events and PVE. Noting that "findings from Stage REM suggests in confirmation of Aserinsky's (1967) hypothesis, the alternating presence of two different 'levels' of dreaming during the REM 'period'" (p. 360), they concluded that "the distinguishing characteristic of PVE is not the presence of visual experience, but the absence of an active intellectual orientation toward such experience, or, to put it differently, the apparently pre-emptory quality of the visual imagery associated with phasic activation. Topographically, PVE bears the stamp of an eruption from the unconscious; structurally, PVE appears to be an intrusion which is ego-alien" (p. 362). Or, in other words, it is archetypal.

Further support for this possibility may be found in the work of Hobson and McCarley (1977), which proposes an activation-synthesis hypothesis of the dream process. On the basis of neurobiological research with cats, they hypothesize that during desynchronized (REM) sleep the pontine brain stem is responsible for forebrain and oculomotor activation, the blocking of external input and motor output, and the "generation of some internal input, which the activated forebrain then processes as information" (p. 1336). Their general view of dreaming is that "specific stimuli for the dream imagery appear to arise intracerebrally but from the pontine brain stem and not in cognitive areas of the cerebrum. . . . The elaboration of the brain stem stimulus by the perceptual, conceptual, and emotional structures of the forebrain is viewed as primarily a synthetic constructive process. . . . This fitting of phenotypic experiential data to genotypic stimuli is seen as the major basis of the

'bizarre' formal qualities of dream mentation" (pp. 1346-1347). This description of the activated forebrain synthesizing dreams by meshing experiential data with information generated in the pontine brain stem provides an elegant basis for the concept of archetypal programming.

Taking the above findings into consideration, it becomes quite plausible that archetypality in dreams is related to phasic brain activity during REM sleep, and in some individuals, possibly even during non-REM sleep. (It would be interesting to study the density and patterning of phasic activity as related to intuition and neuroticism, in the light of the findings of this research). However if we wish to progress further in developing an integrated model of dreams and dreaming, it will be necessary to refine and improve our methods of dream collection and analysis, and develop better physiological measures of brain activity during dreaming. These points have been raised in an excellent review by Pivik (1978) on the relation of tonic states and phasic events to sleep mentation. He refers to the inconsistencies which have been observed in phasic event-dream content relationships (which may be a function of methodological or analytical differences or of inadequate measures of dream content or phasic activity), and proposes as a possible explanation that "the synaptic processes underlying PGO-spike generation may not be as important a determinant of the resultant effect of such activity as is the 'intensity of phasic activity relative to the existing level of background activity'" (p. 269). Thus on the neurophysiological level, we are met with the same requirements for further research as on the dream content level: rather than look at discrete events, study specific patterns and their contexts. In this way we can investigate the patternings of the archetypes not only in psychological and behavioural processes,

but also in the meaningful relationships between brain activity and the phenomena of the psyche.

Summary

This work has shown that Carl Jung's theories provide an excellent framework for integrating the fields of research on dreams, dreaming, personality structure, and developmental adaptation. Although difficult, it is possible to operationalize his concepts and generate hypotheses from his extensive writings, which can then be tested, provided that an appropriate methodological approach is used. The Jungian personality typology interlocks consistently and meaningfully with both dream recall and dream content, and the construct of archetypality in dreams emerges as a very valuable dimension, relevant to personality structure, dream recall, adaptation, and the neurophysiology of dreaming.

Future research can be directed profitably to a number of areas:

1. Replication of the unpredicted inverse relationship between neuroticism and archetypality in dreams;

2. Replication of the personality-dream archetypality relationships with larger, more balanced samples of the Jungian types, and further study of sex-personality interactions in this area;

3. Determination of the relationship between personality and waking cognition and the influence that this has on reported dream content;

4. Investigation of the correspondence of brain activity (e.g. phasic events) during dreaming to archetypality in dreams, with particular emphasis on individual differences, i.e. sensation-intuition, neuroticism, as mediating variables in adaptive development;

5. Clarification of the degree to which the recall of archetypal dreams is determined by the frequency of these dreams in an individual's dreaming experience;

6. Improvement of the measures of archetypality and the development of a new approach to dream content analysis, focused on specific meaningful patterns and action sequences as the archetypal processes or mythologems of the psyche.

> A dream, like every element in the psychic structure, is a product of the total psyche. Hence we may expect to find in dreams everything that has ever been of significance in the life of humanity. Just as human life is not limited to this or that fundamental instinct, but builds itself up from a multiplicity of instincts, needs, desires, and physical and psychic conditions, etc., so the dream cannot be explained by this or that element in it, however beguilingly simple such an explanation may appear to be. We can be certain that it is incorrect, because no simple theory of instinct will ever be capable of grasping the human psyche, that mighty and mysterious thing, nor, consequently, its exponent, the dream. In order to do anything like justice to dreams, we need an interpretive equipment that must be laboriously fitted together from all branches of the humane sciences. (Jung, CW Vol. 8, pp. 277-278)

It is my hope that this work is a contribution to just such a community endeavour.

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Appendix I

The Beginning of a Dream

A letter to all members of the C. G. Jung Society of Montreal, who are interested in dreams--a request for participation in a research project.

The work of Carl Gustav Jung, although accepted as a therapeutic approach and a philosophy of life, has found little support in the realm of modern scientific psychology. A gulf exists between the magic, mythological, religious systems and the scientific, logical, rational systems of our world. This gulf expresses the problems of individuation--the differentiation and integration of opposites--as an outward conflict between individuals and groups. What faces us now, as a major growth crisis for modern consciousness, is the task of integrating these archetypal patterns into a new pattern of wholeness. This process must be carried out in both the inner and the outer worlds. Only then, through relationships, can the necessary tension and interplay of opposites be developed and maintained.

As a beginning, the ideas of Jung must be translated, and brought into a relationship with modern science. It is my path to attempt this in the realm of the underworld--where lives the dream. And so, I must study dreams as empirical phenomena, using the scientific method to test the strength of Jung's theories. I ask your help to build a bridge across the gulf, and bring this dream to life.

The research project will involve two different phases (carried out by mail):

(a) filling out questionnaires and personality inventories and providing written reports of a few dreams; and

(b) keeping a home dream diary for two to four weeks.

N.B. It is not necessary to participate in both phases --part (b) is for those who feel so inclined.

At the conclusion of your participation, you will receive an outline of the specific purpose of this research study, a list of the hypotheses, and a set of readings, for those interested in exploring the reality of dreams.

As well, at the conclusion of the research, contributors will receive a summary of the results. I also plan to hold a number of seminar discussions for interested members.

If you are interested, please either send a note stating your name, address, and telephone number to me at "Douglas R. Cann, 1519 Valiquette, Verdun, P.Q., H4H 2E8," or call me at 766-5671. Confidentiality will be strictly maintained, and information, dreams, etc., will be filed by code numbers, not by name. Dream reports will be used for content analyses, not for interpretation.

I look forward to hearing from you and from your dreams.

Yours sincerely,

Douglas R. Cann.

Appendix II

Dream Research--Instructions (A)

1. Fill out the Eysenck Personality Inventory.
2. Fill out the Myers-Briggs Type Indicator.
3. Complete the Sleep and Dream Questionnaire.
4. Using the 5" x 8" cards to write your dreams on, please respond to the three questions below. As you use the cards, please number them so that they may be kept in order. The cards will be filed by code numbers; thus your name is unnecessary.

Please describe the dream exactly and as fully as you remember it. Your report should contain, whenever possible, a description of the setting of the dream, whether it was familiar to you or not, a description of the people, their sex, age, and relationship to you, and of any animals that appeared in the dream. If possible, describe your feelings during the dream and whether it was pleasant or unpleasant. Be sure to tell exactly what happened during the dream to you and the other characters. Continue your report on the other side, and on additional cards if necessary. Each of the three dreams asked for should be started at the top of a new card.

N.B. Please print or write legibly.

(a) What is the earliest dream you remember? At about what age? (Please write out the dream as fully as possible);

(b) What is the most vivid dream you can recall, and with what situation or event do you associate it, if any? (Please describe the dream first and then the event, as fully as possible);

(c) What is your most recent dream, and about when did it occur? (Please write out dream as fully as

possible. If your most recent dream happens to be your most vivid dream, please describe your next most recent dream.)

5. Please return all research materials (even if you were unable to complete all the questions) to me in the stamped, addressed envelope, as soon as possible. Thank you.

Douglas R. Cann

If there are any difficulties in carrying out the above instructions, please call me at home: 766-5671.

Appendix III

CODE NO:

Sleep and Dream Questionnaire

NAME:
ADDRESS:

PHONE NO:

Instructions: Please answer the following questions as honestly as you can. These questions are necessary since there are a great number of factors which affect your dreams. Your answers are completely confidential. They will be filed under code numbers, and no one except the researcher will ever see them. If you cannot answer a question, please indicate why--this will help in designing future questionnaires. Thank you.

1. How often do you remember your dreams? (circle one): (a) one or more a day; (b) about 3--5 a week; (c) 1--2 a week; (d) about one every 2 weeks; (e) about one a month; (f) less than one a month; (g) never.

2. Have you ever been in psychotherapy in which dreams played an important part? If so, when and for how long? What kind of therapy?

3. Are you in any kind of psychotherapy right now? _____ With or without dreams? _____

4. Are you under a physician's care for any serious medical condition? If yes, please describe briefly.

5. Do you take any prescribed drugs more often than once a month? If yes, what do you take and how often do

you take it?

6. Do you take any non-prescribed drugs (marijuana, LSD, heroin, uppers, downers, etc.) more often than once a month? If yes, what and how often?

7. Do you drink alcoholic beverages more than once a month? If yes, how often?

8. What time do you go to bed most of the time? _____

9. What time do you get up in the morning most of the time? _____

10. Do 8 and 9 hold true for your weekends? If no, please give weekend times. _____

11. On the average, how long does it take you to go to sleep (in minutes)? _____

12. How many times a week do you fall asleep within 5 minutes? _____

13. How many times a week does it take you more than 30 minutes? _____

14. How many nights during the week do you awaken during the night? _____

15. How many times a night do you wake up? _____

16. How many times a month do you wake up at night, and find you are unable to go back to sleep? _____

17. When you awake at night, how much difficulty do you have going back to sleep? (circle one): (a) no difficulty; (b) some difficulty; (c) considerable difficulty; (d) usually not able; (e) never able to.

18. How much difficulty do you have in falling asleep initially? (circle one): (a) none; (b) very little; (c) some; (d) quite a bit; (e) a great deal.

19. How rested do you feel in the morning generally? (circle one): (a) very; (b) moderately; (c) not very; (d) not at all.

20. Do you arise immediately upon awakening in the morning? If no, how long do you stay in bed before getting up (in minutes)? _____

21. How much do you enjoy sleep? (circle one): (a) a great deal; (b) moderately; (c) very little; (d) not at all.

22. When you awake in the morning, are there few or many distractions around you? If many, please describe.

23. Do you have difficulty in recalling dreams? _____ What techniques do you use?

24. When you awake in the morning, do you usually (circle one): (a) remember a dream clearly; (b) remember vague dream images; (c) know you were dreaming, but are unable to recall anything; (d) recall nothing and have no sense of having dreamt at all?

25. Do you pay a lot of attention to your dreams? _____ Why?

26. Would you say that your mood before going to sleep is usually (circle one): (a) pleasant; (b) unpleasant; (c) neutral?

27. Do your moods seem to carry though into your dreams? _____

28. Are your dreams generally (circle one): (a) pleasant; (b) unpleasant; (c) both pleasant and unpleasant; (d) neutral.

29. Would you say that, in general, your dreams are (circle one): (a) straightforward; (b) strange and unusual? If (b), please describe in what way you find them unusual.

30. How vivid are your dreams? (circle one): (a) very vivid; (b) vivid; (c) average; (d) unclear; (e) very unclear.

31. Are your dreams mostly (circle one): (a) sequences of images joined together through a plot; (b) sequences of images with little plot or coherence; (c) sequences of thoughts or feelings without images?

32. Which of your senses (sight, hearing, taste, smell, touch) do you find are most involved and stimulated in your dreams?

33. Do most of your dreams take place in the (circle one): (a) past; (b) present; (c) future; (d) indefinite time?

34. If they take place in the past, how far in the past? _____

35. If they take place in the future, how far into the future? _____

36. Do you often have dreams in which water is a significant element? Describe anything else (object, person, setting, situation, etc.) of which you often dream.

37. Do you have different types of dreams? _____ If yes, please describe in general.

38. What emotions do you most often feel during your dreams?

39. In general, what is the emotional intensity of your dreams? (circle one): (a) none; (b) weak; (c) medium; (d) strong; (e) very strong.

40. Do the moods in your dreams carry over into your waking life? _____

41. Do you have dreams in which you are aware that you are dreaming? (circle one): (a) yes; (b) no; (c) always.

42. Do you dream in (circle one): (a) black and white; (b) colour; (c) mostly black and white; (d) mostly colour; (c) both equally?

43. Do you more often dream of (circle one): (a) familiar persons; (b) unfamiliar persons?

44. Are the feelings associated with unfamiliar persons in your dreams more often (circle one): (a) pleasant; (b) unpleasant; (c) neutral?

45. Are you (circle one): (a) active in your dreams; or do (b) things just happen to you?

46. Are the settings of your dreams usually familiar?

_____

47. Are you often awakened by dreams? If yes, what usually causes you to wake up?

48. Would you prefer to (circle one): (a) dream; or (b) have a dreamless sleep?

49. Have you ever had recurrent dreams? _____ If yes, please describe the main feelings and the theme(s) in brief.

50. Please rank the following in order of their importance to you <u>at this time</u> (from most important to least important):

A. The attempt to recognize and become aware of the hidden or unconscious aspects of your own personality.

B. The attempt to establish a relationship with the force or current of life within yourself;

C. The attempt to understand the meaning of life or gain knowledge of its purpose.

	1st	2nd	3rd
Rank	___	___	___

Any comments you may have on this questionnaire will be appreciated.

Comments:

Appendix IV

Dream Research--Instructions (B)--Dream Diary

1. General

Beginning tomorrow morning, please write all the dreams you remember each night on the 5" x 8" cards provided. As you use the cards, please number and date them so that they may be kept in order. The cards will be filed by code numbers; thus your name is unnecessary.

Please describe the dream exactly and as fully as you remember it. Your report should contain, whenever possible, a description of the setting of the dream, whether it was familiar to you or not, a description of the people, their sex, age, and relationship to you, and of any animals that appeared in the dream. If possible, describe your feelings during the dream and whether it was pleasant or unpleasant. Be sure to tell exactly what happened during the dream to you and the other characters. Continue your report on the other side and on additional cards if necessary. Each of your dreams should be started at the top of a new card.

If you can't remember any dreams on a particular night, write either "no dreams" or "dreams, but can't recall" on a card, with the date. Please use the same card for all those dates on which you have no dreams to report.

After reporting a dream, please date, number and fill out a dream questionnaire for that dream.

2. Remembering your dreams--suggestions

Everyone has several dreams every night, although we usually forget most of them. With careful attention, you can remember many more of your dreams than you normally do. People can even learn to wake up during the night, right

after a dream, when it is most easily remembered.

A. Always keep a pad and pencil beside your bed. When you wake up from a dream during the night, write it down right away. If you don't want to wake up all the way, at least make some notes that will help you remember it in the morning, and go over the dream in your mind. If you have a tape recorder and find it easier to talk into it than to write, use the tape recorder, and write the dream from the tape (If you use a tape recorder, please indicate so).

B. Set your alarm clock for half an hour earlier than you have to get up. Any distraction from the outside world gets in the way of remembering your dream images. When you first wake up, lie quietly, with your eyes closed, and concentrate on any images or feelings that come to you. Often, even if you don't remember a dream right away, parts of it will come back to you, if you keep your attention focused on inner imagery and avoid thinking about what you have to do today.

C. Take enough time in the morning to write down what you remember right away, even if it is only a vague image. As you write what you remember, more may come back to you. If you don't write it down, it will fade rapidly and you may not be able to recall it later.

D. Keep your dreams in mind throughout the day. You may remember dreams at unexpected moments.

E. Don't reject any dream because it seems unimportant, vague, incomplete, confused, embarrassing, or disturbing. The language of dreams is like a difficult foreign language that requires many years of study. Let your dreams express themselves in their own way, without jumping to conclusions about what they may mean.

3. Writing your dreams on the cards

Please take time every day to write your dreams on the cards. Please write legibly. Use a separate pad if you make rough notes before writing the whole dream. Write down everything you can remember about each dream, no matter how vague it is. Do not write your waking thoughts about it, associations, or connections between the dream and daytime events (these can be described on the dream questionnaire for each dream, if you wish).

Please keep your dream diary for 3-4 weeks. If you need more supplies, call me at: 766-5671, and I will arrange it.

4. Returning the research materials

After at least 3 weeks (or 4 weeks if you have less than 10 dreams), please return all the research materials (diary, questionnaires, unused cards, etc.) by mail, in the stamped, addressed envelope provided. If you have any questions regarding the instructions, please do not hesitate to call me.

N.B. If you wish a copy of your dreams, use black ink to write them on the cards, and make a Xerox copy for yourself, before sending the diary to me.

Thank you very much!

Douglas R. Cann.

Appendix V

Date:

Dream Number:

Dream Diary Questionnaire

1. How good is your recall for this dream? ( ) very good, ( ) good, ( ) average, ( ) poor, ( ) very poor.

2. How vivid was the dream? ( ) very vivid, ( ) vivid, ( ) average, ( ) unclear, ( ) very unclear.

3. Did the dream take place in the ( ) past, ( ) present, ( ) future, or ( ) indefinite time?

4. If it took place in the past, how far in the past?

5. What was the emotional intensity of the dream? ( ) none, ( ) weak, ( ) medium, ( ) strong ( ) very strong.

6. Was there any colour in the dream? ( ) yes, ( ) no. Describe what was coloured.

7. OPTIONAL. Is anything in the dream related to your experiences of the last day or so? ( ) yes, ( ) no. If the answer is yes, describe the relationship.

Appendix VI (a)

Douglas R. Cann
1519 Valiquette,
Verdun, Quebec.
H4H 2E8

Dear Participant,

Thank you very much for the time and effort you have given to my research project. I appreciate your willingness to reveal the private world of your dreams--without it, the study of people and the nature of experience and personality would be well nigh impossible!

You will find enclosed a copy of the annotated bibliography on dreams and dreaming. I hope it proves helpful to you in searching out readings which suit your interests. If you would like further information on specific areas, just call me at 766-5671 and I will be happy to provide whatever I can.

As for the purpose of my research, it is designed to explore relationships between personality dimensions (Introversion-Extraversion; Jungian functions of consciousness: thinking-feeling, sensing-intuiting; and emotionality), and dream content characteristics such as degree of affect, number of characters, types of social interactions, strange versus everyday images and actions, etc. For example: Do people who prefer thinking to feeling as a way of making judgments about the world have more thinking activity in their dreams than people who prefer feeling? Do people who prefer sensing to intuiting as a way of perceiving the world find sensory aspects more important in their dreams than those who prefer intuiting? Perhaps the relationship is compensatory (e.g. thinkers have feeling dreams), or perhaps

the conscious attitude filters the dream experience and the memory is reported in terms of one's preference. It is questions like these which I am attempting to explore, and perhaps even answer.

Also, dream recall and different types of dreams (i.e. archetypal or "big" dreams versus everyday dreams, cf. Jungian theory) are being measured and studied. For instance, I think it likely that people who are interested in and pay attention to their dreams, will recall more dreams than those with little interest. As well, introverted intuitives (the type postulated to be nearest the world of the unconscious) should recall more dreams, and also have more archetypal dreams than other types. Of course, this hypothesis will be affected by whether or not a particular person is in a time of crisis--at these times, people tend to have more "big" dreams.

Other hypotheses have been drawn from Jung's theory of the organization of the psyche and the structure and functions of dreams. These have been adjusted according to suggestions from a number of Jungian analysts and researchers. Content analysis scales (a technique for quantifying verbal material) have been chosen from previous research, and a rough scale has been developed for trying to score "shadow characters" (dream figures representing repressed or unknown aspects of the dreamer's personality). The three dream reports (earliest, most vivid, and most recent) were chosen in order to sample archetypal dreams in the first two cases and everyday dreams in the last case.

That should give you a rough idea of my research endeavour in exploring personality and the human psyche--I hope to have results to report to you in the fall.

Thank you again for your participation.

Douglas R. Cann.

Appendix VI (b)

Annotated Bibliography: Dreams and Dreaming

Note: Most of the books and journal articles are available through one or more of the various university libraries in the Montreal area. As well, Classics Books has a good supply of paperback editions, and will order those not in stock.

The books and articles which require more advanced technical knowledge for appreciation are noted below with an asterisk. (*)

I wish you good luck and happy hunting in your reading.

Douglas R. Cann.

Freud, Sigmund. The Interpretation of Dreams. The James Strachey translation. Discus Books/ Published by Avon/M103 pap. (Definitive, up-to-date translation of Freud's revolutionary work.)

Garfield, Patricia. Creative Dreaming. Ballantine Books, Toronto, 1976. pap. 24955. (Interesting account on how to plan your dreams, how to become conscious during dreams, and how to develop dream control.)

Hillman, James. The Dream and the Underworld. Eranos Yearbook, 1973, Vol. 42, 237-321. Available at the McClennan Library, McGill. (An excellent lecture which explores the context of attitudes towards dreams, and emphasizes the importance of viewing and understanding the dream within its own context: the underworld of the unconscious.)

Jones, Richard M. The New Psychology of Dreaming. A Viking Compass Book, pap. C576. Distributed in Canada by the Macmillan Company of Canada Limited. (Highly recommended. A comprehensive overview of the findings of modern research on dreams and the dreaming state. Also reviews the inter-

pretive approaches of the major modern theorists and presents a new theory of dreaming.)

Jung, C. G. Dreams. Princeton University Press, Bollingen Series Paperbacks. P/B 298. (Highly recommended. Contains six of Jung's major works on dreams--an invaluable collection for understanding Jung's theory and interpretation of dreams.)

Jung, C. G. Mandala Symbolism. Princeton University Press. Bollingen Series Paperbacks. P/B 266. (Two important papers on mandala symbolism, and a popular summary of the subject. An in-depth study of the process of individuation and the inner processes of the mandala.)

Jung, C. G. Man and his Symbols. Doubleday and Company Inc., New York. Also available in Dell paperback 5183. (An excellent introduction to Jung's theory of the importance of symbolism. Explores the nature and function of dreams and symbols with chapters by Jung and noted Jungians on the unconscious, myths, the process of individuation, art and science. Highly recommended.)

*Kramer, M., ed. Dream Psychology and the New Biology of Dreaming. Charles C. Thomas, Springfield, Ill., U.S.A. 1969. (Excellent report on a conference which focused both on the classical views of the nature of the dream as seen in the light of the findings coming from the REM studies, and on the current attempts at exploring the content of REM collected dreams.)

Krishna, Das Gupta. The Shadow World. Available at McLennan Library, McGill. (Overview of the theory, function and interpretation of dreams from the early Greeks and Indians through to Freud and Jung.)

Lee, S. G. M., and Mayes, A. R., eds. Dreams and Dreaming: Selected Readings. Penguin Modern Psychology Readings, Penguin Education. pap. (A stimulating collection of papers which draws together some of the most influential findings in the field. Includes ancient and modern theories of dreams, empirical studies of dreams, rapid eye movement sleep and dreams, effects of REM sleep deprivation, and theories and future prospects.)

Sundance Community Dream Journal--a journal designed to serve a circle of cooperating dreamers personally interested in educational dream research guided by spiritual ideals. An experimental publication sponsored by The Association for Learning (Atlantic University). Subscriptions ($5.00/volume--2 issues. Single copies $3.25) and inquiries should be addressed to: Sundance, P.O. Box 595, Virginia Beach, VA 23451.

The Interpretation of Dreams: The oneirocritica of Artemidorus. (Trans. by R. White) Artemidorus. Park Ridge, W.J.: Noyes Classical Studies, 1975. IX, 259 p. (The work contains hundreds of dream interpretations and was mentioned frequently by both Jung and Freud.

*Archetypal Dreams and "everyday" dreams: A statistical investigation into Jung's theory of the collective unconscious. Kluger, H. Yehezkel. Israel Annals of Psychiatry and Related Disciplines. 1975, Mar., Vol. 13(1), 6-47. (Examines the historical background of the study of dreams, presents a synopsis of Jung's theory of archetypes and the collective unconscious, and reports a statistical investigation of the theory of archetypes by evaluating manifest dream content. It is concluded that archetypal dreams do indeed exist as a measurable category of dreams which is distinguishable from everyday dreams.)

Theories of Dream Function. Janet Dallet. Psych. Bull. 1973 Jun. Vol. 79(6), 408-416. (Reviews some contemporary and psychoanalytic theories of dream function. Particular attention is given to Jung's model of personality and theory of dream function, a dynamic, open-system approach that stands in contrast to Freud's mechanistic, drive-reduction model. Jung's approach has much to add to contemporary dream theory, particularly in making room for creative and non-rational processes, as well as the specific proposition that dreams function to balance and complete waking consciousness.)

Conventional boundaries or protective temenos. Edith Wallace. Art. Psychotherapy. 1973 Fall, Vol. 1(2), 91-99. (Employs Jungian concepts to distinguish between the boundaries built by the anxious ego as a protection of conventional safe-guards and the sacred precinct, the "temenos," within which the search for the unconscious centre of the self can be carried out.)

Growth, Change, and Transformation in dreams. Ernest L. Rossi. J. of Humanistic Psychology, 1971, Vol. 11(2) 147-169. (Dreaming is considered to involve "phenomenological processes intrinsic to the growth, change and transformation of personality.") See also by the same author: Dreams and the Growth of Personality: Expanding Awareness in Psychotherapy; Pergamon General Psychology Series: Vol. 26, 1972.

An Analysis of how dreams are used in creative behavior. Roy Dreistadt. Psychology 1971, Vol. 8(1), 24-50. (Famous creative dreams of artists, scientists, philosophers, and inventors are analyzed and classified as to whether they were used literally or analogically in creative work. A general theory of dreams is postulated that relates creative dreams to ordinary dreams and which is a unification of the dream theories of Freud, Jung, and Adler.)

The essential theme in Jungian psychology. Stanley Krippner and Harry K. Easton. Journal of Contemporary Psychotherapy, 1970, Bol. 3(1) 19-26. (Describes the contributions of Jung to existential psychology.)

Dream Telepathy: Experiments in Nocturnal ESP. ed. Alan Vaughan. Penguin paperback, 1974.

*Toward a theory of dream recall. David B. Cohen. Psychological Bulletin, 1974, Vol. 81(2), 138-154. (Reviews research on factors affecting dream recall, and outlines a model for dream recall based on interactions among situational, organismic, and individual difference factors.)

Dreaming as metaphor in motion. Montague Allman, M.D. Archives of General Psychiatry. 1969, Vol. 21, Dec. 696-703.

A Decade of Dreams: A Review. Roy M. Whitman, M.D. International Journal of Psychoanalytic Psychotherapy 1974, 3(2) 217-245. (A Review of the major works published on dreams in the last ten years.)

*A Neurophysiologic Model of Dreams and Hallucinations. Raul Hernandez-Peon, M.D. J. of Ner. & Ment. Disease, 1966, Vol. 141, #6, 623-650.

*Dreaming and the Physiology of Sleep--Arthur Shapiro. Expt. Neurology (Physiological correlates of Dreaming. 1967 Supplement 4, pp. 56-81.

*Paradoxical Sleep--A Study of its Nature and Mechanisms--M. Jouvet. Progress in Brain Research--Sleep Mechanisms. Vol. 18, 1965, 20-62.

An Essay on Dreams: The Role of Physiology in Understanding Their Nature. William C. Dement. in New Directions in Psychology II. Holt, Rinehart and Winston, Inc. New York, Toronto. (An excellent introduction to research on REM sleep--without being too complex.)

Appendix VI (c)

Jungian Typology and Dream Recall

(Douglas R. Cann, McGill University)

This study investigated the relationships between Jung's personality typology, dream recall (as measured by questionnaire and diary) and degree of archetypality (the degree to which instinctive patterned reactions and their affective-behavioural components are manifest in dream content: measured by three scales, degree of affect, degree of rationality, and degree of "everydayness."

Jung's typology outlines three major dimensions composed of pairs of opposites: sensing (S)--intuition (N), thinking (T)--feeling (F), and extraversion (E)--introversion (I). Sensing and intuition are opposite ways of obtaining information about the world. Sensing involves gathering facts through the senses, while intuition involves the unconscious perception of relationships and possibilities. Thinking and feeling are opposite ways of making judgments about that information--thinking by impersonal and logical analysis, or feeling on the basis of personal values. Extraversion and introversion are the directing of interest and attention towards the interactions with people and things in the outer world in the first case, and towards the inner processes of thought and imagery in the latter case. Each individual has a stronger preference, more or less, for one or the other of each of the three pairs of functions or processes.

The Myers-Briggs Type Indicator (measuring Jung's typology), the Eysenck Personality Inventory, and a 7-point recall scale were administered to 145 subjects (students, Jung Society members, general public). A sub-sample of 30

subjects also kept a dream diary (range 6--42 nights; $\bar{x}$ = 23.03, s = 8.82) using suggestions for improving recall. Dream reports (n = 384) were scored (blind and in randomized order) by three raters using written instructions only. Inter-rater scale reliabilities were all acceptable (range, Pearson's r: .71--.94). Dreams showing sufficient intensity on at least two of the three scales were classed as archetypal; all others were classed as everyday. The data were analyzed using Pearson's correlation coefficient as a measure of relationship between personality scores and dream recall.

Results indicate that estimates of dream recall are positively correlated with the preference for intuition and feeling. As well, females estimate higher dream recall than males. N.B., all results were in the direction predicted except for the negative correlation between neuroticism and archetypal density, noted below.

For the diary sample, the major findings may be summarized as follows:

1. Introversion is positively correlated with the recall of everyday dreams, but uncorrelated with the recall of archetypal dreams.

2. Intuition is positively correlated with the recall of archetypal dreams, and uncorrelated with the recall of everyday dreams.

3. Neuroticism is negatively correlated with the recall of archetypal dreams, and uncorrelated with the recall of everyday dreams.

These findings are consistent with the Jungian propositions that introversion is the directing of interest towards inner processes, and intuition is the perception of information stemming from unconscious sources.

The negative correlation between neuroticism and

archetypal density is clinically interesting. It may indicate that the dreams of high neurotics are more restricted to material of an individual nature (i.e. related to the personal unconscious) as opposed to that of a collective nature (i.e. related to the collective unconscious). The neurotic is trapped in a more narrow, limited view and is cut off from the archetypal levels of the personality.

It is possible that reporting bias could account for the above results, e.g. the avoidance of disturbing or strange material or an unwillingness to report it. However all subjects reported archetypal dreams and numerous everyday dreams containing very personal material and high levels of affect.

Further research will be necessary to determine whether recall of archetypal content is due to memory processes or to the frequency of archetypal dreams in an individual's dream life.

Myers-Briggs Type Indicator **Type Table**

Jung Society Members

N = 25

Base Population

N = 146

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 1 %= 4.00 I = 0.65	***ISFJ*** N= 1 %= 4.00 I = 0.49	***INFJ*** N= 4 %=16.00 I = 1.95	***INTJ*** N= 2 %= 8.00 I = 0.97	JUDGING
ISTP N= 0 %= 0.0 I = 0.0	***ISFP*** N= 1 %= 4.00 I = 1.17	***INFP*** N= 6 %=24.00 I = 1.84	***INTP*** N= 2 %= 8.00 I = 2.34	INTROVERTS PERCEPTIVE
ESTP N= 0 %= 0.0 I = 0.0	***ESFP*** N= 0 %= 0.0 I = 0.0	***ENFP*** N= 4 %=16.00 I = 1.95	***ENTP*** N= 1 %= 4.00 I = 0.97	PERCEPTIVE EXTRAVERTS
ESTJ N= 0 %= 0.0 I = 0.0	***ESFJ*** N= 1 %= 4.00 I = 0.53	***ENFJ*** N= 1 %= 4.00 I = 0.49	***ENTJ*** N= 1 %= 4.00 I = 0.97	JUDGING

	N	%	I
E	8	32.00	0.75
I	17	68.00	1.18
S	4	16.00	0.38**
N	21	84.00	1.46**
T	7	28.00	0.67
F	18	72.00	1.24
J	11	44.00	0.81
P	14	56.00	1.22
IJ	8	32.00	1.04
IP	9	36.00	1.35
EP	5	20.00	1.04
EJ	3	12.00	0.52
ST	1	4.00	0.18*
SF	3	12.00	0.58
NF	15	60.00	1.59*
NT	6	24.00	1.21
SJ	3	12.00	0.47
SP	1	4.00	0.23
NP	13	52.00	1.81**
NJ	8	32.00	1.11
TJ	4	16.00	0.73
TP	3	12.00	0.60
FP	11	44.00	1.69*
FJ	7	28.00	0.87
IN	14	56.00	1.70**
EN	7	28.00	1.14
IS	3	12.00	0.49
ES	1	4.00	0.22

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(Underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Myers-Briggs Type Indicator

Psychology Students

N = 14

Base Population

N = 146

Type Table

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 0 %= 0.0 I = 0.0	**ISFJ** N= 2 %=14.29 I = 1.74	**INFJ** N= 2 %=14.29 I = 1.74	**INTJ** N= 0 %= 0.0 I = 0.0	JUDGING
ISTP N= 0 %= 0.0 I = 0.0	**ISFP** N= 1 %= 7.14 I = 2.09	**INFP** N= 3 %=21.43 I = 1.65	**INTP** N= 0 %= 0.0 I = 0.0	INTROVERTS PERCEPTIVE
ESTP N= 0 %= 0.0 I = 0.0	**ESFP** N= 0 %= 0.0 I = 0.0	**ENFP** N= 1 %= 7.14 I = 0.87	**ENTP** N= 0 %= 0.0 I = 0.0	PERCEPTIVE EXTRAVERTS
ESTJ N= 0 %= 0.0 I = 0.0	**ESFJ** N= 1 %= 7.14 I = 0.95	**ENFJ** N= 3 %=21.43 I = 2.61	**ENTJ** N= 1 %= 7.14 I = 1.74	JUDGING

	N	%	I
E	6	42.86	1.01
I	8	57.14	0.99
S	4	28.57	0.67
N	10	71.43	1.24
T	1	7.14	0.17**
F	13	92.86	1.59**
J	9	64.29	1.19
P	5	35.71	0.78
IJ	4	28.57	0.93
IP	4	28.57	1.07
EP	1	7.14	0.37
EJ	5	35.71	1.53
ST	0	0.00	0.00*
SF	4	28.57	1.39
NF	9	64.29	1.71*
NT	1	7.14	0.36
SJ	3	21.43	0.85
SP	1	7.14	0.42
NP	4	28.57	0.99
NJ	6	42.86	1.49
TJ	1	7.14	0.33
TP	0	0.00	0.00
FP	5	35.71	1.37
FJ	8	57.14	1.78*
IN	5	35.71	1.09
EN	5	35.71	1.45
IS	3	21.43	0.87
ES	1	7.14	0.40

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(Underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Myers-Briggs Type Indicator
Engineering Students

N = 20

Base Population

N = 146

Type Table

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 0 %= 0.0 I = 0.0	**ISFJ** N= 2 %=10.00 I = 1.22	**INFJ** N= 2 %=10.00 I = 1.22	**INTJ** N= 2 %=10.00 I = 1.22	JUDGING
ISTP N= 4 %=20.00 I = 2.92*	**ISFP** N= 0 %= 0.0 I = 0.0	**INFP** N= 1 %= 5.00 I = 0.38	**INTP** N= 1 %= 5.00 I = 1.46	INTROVERTS PERCEPTIVE
ESTP N= 2 %=10.00 I = 1.82	**ESFP** N= 0 %= 0.0 I = 0.0	**ENFP** N= 2 %=10.00 I = 1.22	**ENTP** N= 0 %= 0.0 I = 0.0	PERCEPTIVE EXTRAVERTS
ESTJ N= 3 %=15.00 I - 4.38*	**ESFJ** N= 1 %= 5.00 I = 0.66	**ENFJ** N= 0 %= 0.0 I = 0.0	**ENTJ** N= 0 %= 0.0 I = 0.0	JUDGING

	N	%	I
E	8	40.00	0.94
I	12	60.00	1.04
S	12	60.00	1.41
N	8	40.00	0.70
T	12	60.00	1.44
F	8	40.00	0.69
J	10	50.00	0.92
P	10	50.00	1.09
IJ	6	30.00	0.97
IP	6	30.00	1.12
EP	4	20.00	1.04
EJ	4	20.00	0.86
ST	9	45.00	2.05**
SF	3	15.00	0.73
NF	5	25.00	0.66
NT	3	15.00	0.76
SJ	6	30.00	1.18
SP	6	30.00	1.75
NP	4	20.00	0.70
NJ	4	20.00	0.70
TJ	5	25.00	1.14
TP	7	35.00	1.76
FP	3	15.00	0.58
FJ	5	25.00	0.78
IN	6	30.00	0.91
EN	2	10.00	0.41
IS	6	30.00	1.22
ES	6	30.00	1.68

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(Underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Myers-Briggs Type Indicator **Type Table**

Business, Management, Accounting Students

N = 26

Base Population

N = 146

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 5 %=19.23 I = 3.12**	***ISFJ*** N= 2 %= 7.69 I = 0.94	***INFJ*** N= 1 %= 3.85 I = 0.47	***INTJ*** N= 0 %= 0.0 I = 0.0	JUDGING
ISTP N= 3 %=11.54 I = 1.68	***ISFP*** N= 0 %= 0.0 I = 0.0	***INFP*** N= 1 %= 3.85 I = 0.30	***INTP*** N= 0 %= 0.0 I = 0.0	PERCEPTIVE — INTROVERTS
ESTP N= 1 %= 3.85 I = 0.70	***ESFP*** N= 0 %= 0.0 I = 0.0	***ENFP*** N= 1 %= 3.85 I = 0.47	***ENTP*** N= 2 %= 7.69 I = 1.87	PERCEPTIVE — EXTRAVERTS
ESTJ N= 0 %= 0.0 I = 0.0	***ESFJ*** N= 4 %=15.38 I = 2.04	***ENFJ*** N= 3 %=11.54 I = 1.40	***ENTJ*** N= 3 %=11.54 I = 2.81	JUDGING

	N	%	I
E	14	53.85	1.27
I	12	46.15	0.80
S	15	57.69	1.36
N	11	42.31	0.74
T	14	53.85	1.29
F	12	46.15	0.79
J	18	69.23	1.28
P	8	30.77	0.67
IJ	8	30.77	1.00
IP	4	15.38	0.58
EP	4	15.38	0.80
EJ	10	38.46	1.65*
ST	9	34.62	1.58
SF	6	23.08	1.12
NF	6	23.08	0.61
NT	5	19.23	0.97
SJ	11	42.31	1.67*
SP	4	15.38	0.90
NP	4	15.38	0.53
NJ	7	26.92	0.94
TJ	8	30.77	1.40
TP	6	23.08	1.16
FP	2	7.69	0.30*
FJ	10	38.46	1.19
IN	2	7.69	0.23**
EN	9	34.62	1.40
IS	10	38.46	1.56
ES	5	19.23	1.08

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(Underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Myers-Briggs Type Indicator

Science Students

N = 14

Base Population

N = 146

Type Table

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 1 %= 7.14 I = 1.16	***ISFJ*** N= 0 %= 0.0 I = 0.0	***INFJ*** N= 0 %= 0.0 I = 0.0	***INTJ*** N= 3 %=21.43 I = 2.61	JUDGING
ISTP N= 1 %= 7.14 I = 1.04	***ISFP*** N= 0 %= 0.0 I = 0.0	***INFP*** N= 1 %= 7.14 I = 0.55	***INTP*** N= 2 %=14.29 I = 4.17	INTROVERTS PERCEPTIVE
ESTP N= 1 %= 7.14 I = 1.30	***ESFP*** N= 0 %= 0.0 I = 0.0	***ENFP*** N= 1 %= 7.14 I = 0.87	***ENTP*** N= 0 %= 0.0 I = 0.0	PERCEPTIVE EXTRAVERTS
ESTJ N= 1 %= 7.14 I = 2.09	***ESFJ*** N= 0 %= 0.0 I = 0.0	***ENFJ*** N= 3 %=21.43 I = 2.61	***ENTJ*** N= 0 %= 0.0 I = 0.0	JUDGING

	N	%	I
E	6	42.86	1.01
I	8	57.14	0.99
S	4	28.57	0.67
N	10	71.43	1.24
T	9	64.29	1.54
F	5	35.71	0.61
J	8	57.14	1.06
P	6	42.86	0.93
IJ	4	28.57	0.93
IP	4	28.57	1.07
EP	2	14.29	0.74
EJ	4	28.57	1.23
ST	4	28.57	1.30
SF	0	0.00	0.00
NF	5	35.71	0.95
NT	5	35.71	1.80
SJ	2	14.29	0.56
SP	2	14.29	0.83
NP	4	28.57	0.99
NJ	6	42.86	1.49
TJ	5	35.71	1.63
TP	4	28.57	1.44
FP	2	14.29	0.55
FJ	3	21.43	0.67
IN	6	42.86	1.30
EN	4	28.57	1.16
IS	2	14.29	0.58
ES	2	14.29	0.80

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Myers-Briggs Type Indicator

Miscellaneous Students

N = 22

Base Population

N = 146

Type Table

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 0 %= 0.0 I = 0.0	***ISFJ*** N= 2 %= 9.09 I = 1.11	***INFJ*** N= 1 %= 4.55 I = 0.55	***INTJ*** N= 3 %=13.64 I = 1.66	JUDGING
ISTP N= 1 %= 4.55 I = 0.66	***ISFP*** N= 1 %= 4.55 I = 1.33	***INFP*** N= 4 %=18.18 I = 1.40	***INTP*** N= 0 %= 0.0 I = 0.0	INTROVERTS PERCEPTIVE
ESTP N= 1 %= 4.55 I = 0.83	***ESFP*** N= 2 %= 9.09 I = 6.64*	***ENFP*** N= 2 %= 9.09 I = 1.11	***ENTP*** N= 2 %= 9.09 I = 2.21	PERCEPTIVE EXTRAVERTS
ESTJ N= 1 %= 4.55 I = 1.33	***ESFJ*** N= 2 %= 9.09 I = 1.21	***ENFJ*** N= 0 %= 0.0 I = 0.0	***ENTJ*** N= 0 %= 0.0 I = 0.0	JUDGING

	N	%	I
E	10	45.45	1.07
I	12	54.55	0.95
S	10	45.45	1.07
N	12	54.55	0.95
T	8	36.36	0.87
F	14	63.64	1.09
J	9	40.91	0.76
P	13	59.09	1.29
IJ	6	27.27	0.88
IP	6	27.27	1.02
EP	7	31.82	1.66
EJ	3	13.64	0.59
ST	3	13.64	0.62
SF	7	31.82	1.55
NF	7	31.82	0.84
NT	5	22.73	1.14
SJ	5	22.73	0.90
SP	5	22.73	1.33
NP	8	36.36	1.26
NJ	4	18.18	0.63
TJ	4	18.18	0.83
TP	4	18.18	0.92
FP	9	40.91	1.57
FJ	5	22.73	0.71
IN	8	36.36	1.11
EN	4	18.18	0.74
IS	4	18.18	0.74
ES	6	27.27	1.53

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(Underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Myers-Briggs Type Indicator

Miscellaneous Subjects

N = 25

Base Population

N = 146

Type Table

Legend: % = percent of total choosing this group who fall into this type;
I = self-selection index; ratio of % of type in group to % in sample.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 2 %= 8.00 I = 1.30	***ISFJ*** N= 3 %=12.00 I = 1.46	***INFJ*** N= 2 %= 8.00 I = 0.97	***INTJ*** N= 2 %= 8.00 I = 0.97	JUDGING
ISTP N= 1 %= 4.00 I = 0.58	***ISFP*** N= 2 %= 8.00 I = 2.34	***INFP*** N= 3 %=12.00 I = 0.92	***INTP*** N= 0 %=0.0 I = 0.0	PERCEPTIVE — INTROVERTS
ESTP N= 3 %=12.00 I = 2.19	***ESFP*** N= 0 %= 0.0 I = 0.0	***ENFP*** N= 1 %= 4.00 I = 0.49	***ENTP*** N= 1 %= 4.00 I = 0.97	PERCEPTIVE — EXTRAVERTS
ESTJ N= 0 %= 0.0 I = 0.0	***ESFJ*** N= 2 %= 8.00 I = 1.06	***ENFJ*** N= 2 %= 8.00 I = 0.97	***ENTJ*** N= 1 %= 4.00 I = 0.97	JUDGING

	N	%	I
E	10	40.00	0.94
I	15	60.00	1.04
S	13	52.00	1.22
N	12	48.00	0.83
T	10	40.00	0.96
F	15	60.00	1.03
J	14	56.00	1.03
P	11	44.00	0.96
IJ	9	36.00	1.17
IP	6	24.00	0.90
EP	5	20.00	1.04
EJ	5	20.00	0.86
ST	6	24.00	1.10
SF	7	28.00	1.36
NF	8	32.00	0.85
NT	4	16.00	0.81
SJ	7	28.00	1.10
SP	6	24.00	1.40
NP	5	20.00	0.70
NJ	7	28.00	0.97
TJ	5	20.00	0.91
TP	5	20.00	1.01
FP	6	24.00	0.92
FJ	9	36.00	1.12
IN	7	28.00	0.85
EN	5	20.00	0.81
IS	8	32.00	1.30
ES	5	20.00	1.12

NOTES: Symbols following the selection ratios:
* implies significance at the .05 level, i.e. CHI SQ. > 3.8;
** implies significance at the .01 level, i.e. CHI SQ. > 6.6;
*** implies significance at the .001 level, i.e. CHI SQ. > 10.8;
(Underscore) indicates Fisher's Exact Probability used instead of CHI SQUARE.

Appendix XIV

Additions to Hall and Van de Castle Character Scoring System

1. Number: The scoring symbol for a crowd, or a group described as "big" or "large," or known by its nature to be so, is "9."

2. Identity: All immediate family members of the dreamer are scored "Y."

3. Additional Scoring Rules:

(2) If several (3 or more) characters are simply enumerated and the dreamer does not further describe the appearance or activities of any of these individual characters at any point in the dream, the enumerated characters are scored as a single group--if the identity is the same for all the characters, otherwise score those which do not fit the group identity as individuals.

(3) If some, but not all, of the members of a group are distinguished with regard to appearance or activities as individuals, score as an individual character each of them who is so distinguished and score the remainder as a group--if the remainder is greater than one or of an unknown number.

Appendix XV

Affect

It is the affect of the dreamer (the dream ego) which is scored, not that of any other dream character. If the presence or absence of affect is not explicitly stated, or implied, estimate the degree of affect which would usually be associated with the situation and context surrounding the dreamer. Score the highest degree of affect which occurs within the general context of the dream.

6. Extreme--panic, horrified, terrified, ecstatic, enraged, furious, paranoia, suicidal depression.
5. Very Strong--great fear or anger, hatred, incensed, dread, mortified, crushed, grief-stricken, revulsion, awe-stricken, exhilarated, elated, heart-broken, astonished, amazed, desperate.
4. Strong or Stressed--afraid, scared, happy, delighted, excited, mad, angry, sorrowful, alarmed, ashamed, foreboding, very embarrassed, contempt, depressed, hopeless, mourning, very disgusted, repulsed, bewildered, mystified, joyful, distressed, miserable.
3. Moderate--glad, annoyed, very interested or satisfied, irritated, apprehensive, nervous, uptight, indignant, provoked, disappointed, upset, sad, lonely, frustrated, surprised, weird, confused, cheerful, gay, hurt, dislike, compassionate.
2. Mild--pleasant, unpleasant, uneasy, worried, concerned, sorry, defensive, apologetic, regretful, bored, discontented, puzzled, uncertain, doubtful, contented, amused, sympathetic.
1. Slight or Absent--relaxed, unconcerned, neutral.

N.B. The addition of intensifiers (e.g. very, greatly, extremely, etc.) will increase the degree of affect scored.

Appendix XVI

Rationality

The considerations in scoring dream content under this category are the degree of likelihood of their occurrence, and the degree of their adherence to natural law.

4. Rational, and not unlikely - -Examples: riding a bike, hitting a stone, and falling off.
3. Rational-possible (i.e. possible, conceivable, but uncommon or unexpected)--Examples: being chased, caught, and raped; San Francisco being bombed by the Russians.
2. Rational-unlikely (i.e. very unlikely, although not violating any natural law)--Examples: being chased from tree to tree by a white bear; some men chased, caught, and tried to poison me.
1x. Borderline (i.e. the operation of natural law is uncertain or questionable)--Example: a long row of black box-cars rolling by on a railroad track. There was no engine.
1. Non-rational but comprehensible- - Examples: playing in the barnyard and suddenly covered with green snakes; our guns wiped out everything in front of them.
0. Irrational (i.e. impossible in reality)--Examples: a toothed fish chased me out of the pool and across the fields; about a man with a lion's head.
B. Bizarre--Example: the veins on my chest stood out, studded with rhinestones and sequins.

Appendix XVII

Everydayness

4. For dreams just like everyday life--Examples: making plans with a friend for a car trip to a neighboring town; having to go to the bathroom; working or talking with some people.

3. Slight variations from everyday life--Examples: running in a relay race with two best friends, somehow got in wrong exchange area and have to give up the race; or (a student), "I had already graduated and gotten a good position in my field."

2. Unlikely variations from everyday life--Examples: returning to apartment to find all the furniture gone and workmen removing the bathroom pipes; all the girls in the dorm getting together for the last time before vacation, and all sad and crying at the prospect of the long separation.

1x. With an impossible twist to everyday life--Examples: cleaning out a fishbowl, the fish swim up the stream of water pouring into it; a horse performing tricks suddenly turns into an elephant.

1. Very unlikely in everyday life--Examples: walking along a dirt road, an airliner flies so low over us we could almost touch it. It circles back, lands on the road hitting a group of people as though intentionally.

0. Very remote from everyday life, or with the feeling tone of the strange and unfamiliar--Examples: three priests with icepicks sitting at a round table, each begins lightly pricking the left arm of his neighbor, increasing this to jabbing and furiously stabbing till it's a horrible bloody scene; "I walk through a maze

of high hedges. I am trying to reach the center. There is a mist in the air, and grass is beneath my feet. I feel I am near a river or a moat. I have very long hair, and clothes that belong to another century. I sing the old folksong, 'Where I come from nobody knows.' I feel I must get out or get to the center."

B. Bizarre--Example: The veins on my chest stood out, studded with rhinestones and sequins.

Appendix XVIII

Affect

It is the affect of the dreamer (the dream ego) which is scored, not that of any other dream character. If not explicitly stated, or implied, the degree of affect may be estimated by the scorer.

4. Very strong: great fear, panic, horror, ecstacy.
3. Strong or stressed: afraid, scared, happy, delighted, excited.
2. Mild to moderate: pleasant, unpleasant, very interesting, very satisfying, glad, annoyed.
1. Slight or absent.

Appendix XIX

Affect Scale Reliability--Raw Data

Dream No.	Rater 1	Rater 2	Rater 3	Rater 4
1	1.0	1.0	2.0	3.0
2	2.0	1.0	1.0	1.0
3	2.0	2.0	2.0	2.0
4	3.0	2.0	5.0	4.0
5	2.0	2.0	3.0	2.0
6	4.0	4.0	4.0	6.0
7	2.0	2.0	2.0	2.0
8	6.0	4.0	5.0	5.0
9	3.0	3.0	3.0	3.0
10	3.0	3.0	3.0	3.0
11	4.0	4.0	3.0	4.0
12	4.0	4.0	4.0	5.0
13	3.0	3.0	4.0	3.0
14	3.0	3.0	3.0	4.0
15	4.0	4.0	4.0	4.0
16	5.0	6.0	6.0	6.0
17	6.0	6.0	5.0	5.0
18	6.0	6.0	5.0	5.0
19	5.0	5.0	5.0	4.0
20	5.0	5.0	6.0	4.0
21	2.0	2.0	2.0	2.0
22	5.0	6.0	5.0	5.0
23	6.0	6.0	6.0	5.0
24	6.0	6.0	6.0	6.0
25	6.0	6.0	6.0	6.0
26	2.0	3.0	5.0	1.0
27	6.0	6.0	6.0	6.0
28	2.0	2.0	2.0	2.0
29	5.0	6.0	6.0	4.0
30	5.0	5.0	5.0	6.0
31	4.0	4.0	3.0	4.0
32	5.0	4.0	5.0	5.0
33	3.0	3.0	3.0	3.0

Appendix XX

Rationality Scale Reliability--Raw Data

Dream No.	Rater 1	Rater 2	Rater 3	Rater 4
1	3.0	3.0	3.0	4.0
2	4.0	4.0	4.0	4.0
3	1.5	4.0	1.5	1.5
4	3.0	4.0	3.0	1.0
5	2.0	2.0	2.0	1.0
6	2.0	2.0	3.0	2.0
7	4.0	3.0	3.0	4.0
8	2.0	2.0	3.0	1.0
9	3.0	1.5	3.0	2.0
10	4.0	4.0	4.0	4.0
11	3.0	3.0	3.0	3.0
12	2.0	2.0	3.0	2.0
13	3.0	2.0	4.0	4.0
14	4.0	4.0	4.0	3.0
15	1.0	0.0	2.0	0.0
16	0.0	0.0	0.0	0.0
17	1.0	2.0	2.0	2.0
18	0.0	1.0	1.5	0.0
19	1.0	2.0	3.0	1.0
20	0.0	1.5	1.0	1.0
21	4.0	4.0	4.0	4.0
22	2.0	1.0	2.0	0.0
23	1.0	2.0	1.5	1.5
24	0.0	0.0	1.5	0.0
25	2.0	1.0	1.5	2.0
26	0.0	1.0	1.0	0.0
27	2.0	2.0	2.0	1.0
28	1.0	1.5	1.5	1.0
29	4.0	3.0	3.0	3.0
30	1.5	3.0	3.0	3.0
31	4.0	4.0	4.0	4.0
32	1.5	3.0	2.0	0.0
33	2.0	2.0	1.5	2.0

Appendix XXI

"Everydayness" Scale Reliability--Raw Data

Dream No.	Rater 1	Rater 2	Rater 3	Rater 4
1	2.0	2.0	3.0	3.0
2	4.0	4.0	4.0	4.0
3	2.0	4.0	1.5	1.5
4	2.0	2.0	3.0	1.0
5	1.0	1.0	2.0	1.0
6	2.0	2.0	2.0	2.0
7	3.0	3.0	3.0	3.0
8	2.0	2.0	2.0	2.0
9	1.0	1.5	3.0	2.0
10	4.0	4.0	4.0	4.0
11	2.0	1.0	2.0	1.0
12	1.0	1.0	2.0	2.0
13	2.0	2.0	3.0	3.0
14	2.0	4.0	3.0	3.0
15	0.0	0.0	1.5	0.0
16	0.0	0.0	1.5	0.0
17	1.0	1.0	2.0	1.0
18	0.0	1.5	1.0	1.5
19	1.0	1.0	2.0	1.0
20	0.0	0.0	0.0	0.0
21	3.0	4.0	4.0	4.0
22	1.0	1.0	1.5	0.0
23	1.0	1.0	1.5	1.0
24	1.5	0.0	1.5	0.0
25	1.0	1.0	1.0	1.0
26	0.0	0.0	1.5	0.0
27	1.0	1.0	1.0	1.0
28	1.5	1.5	1.5	1.5
29	2.0	2.0	2.0	2.0
30	0.0	0.0	2.0	2.0
31	4.0	4.0	4.0	4.0
32	1.0	2.0	1.0	0.0
33	1.0	1.0	1.5	1.0

Appendix XXII

Personality and Questionnaire Data Scoring Card

SCODE	GCODE	SEX	AGE	MSTAT	ESCORE	NSCORE	TYPE NO	TYPE L
150	1	2	37	1	16	5		INFP
1-3	5	7	9-10	12	14-15	17-18	20-21	23-26
EICONT	SNCONT	TFCONT		JPCONT	DREAMR	THERAPY	MEDCON	DRUGS P
117	135	107		113	5	0	0	0
28-30	32-34	36-38		40-42	44	46	48	50
DRUGSNP	SLEEP T	SLEEP Q		DISTRAC	REC DIFF	REC TYPE	INTEREST	MOOD 1
1	2	9		1	2	3	2	1
52	54	56-57		59	61	63	65	67
FTONE	EVERYDY	DVIVID		DREAM Q	CARD		SCODE	SENSES
1	2	3		2	A		150	12300
69	71	73		75	77-80		1-3	5-9
TIME	WATER	DTYPES		DEMOT	EMOT INT	MOOD 2	LUCID	COLOUR
1	1	1		1	3	1	1	3
11	13	15		17	19	21	23	25
PERS FAM	PASS ACT	SET FAM		D AWAKE	D PREF	D RECURR		CARD
2	0	1		0	1	0	B	B
27	29	31		33	35	37	39-75	77-80

Appendix XXIII

Sleep & Dream Questionnaire Scoring Instructions

Questions	Variable Name	Scoring Code
1	DREAMR	A=6; B=5; C=4; D=3; E=2; F=1; G=0
2 and 3	THERAPY	No Past, No Present = 0; Past, No Present = 1; No Past, Present (No Dreams) = 2; Past, Present (No Dreams) = 3; No Past, Present (Dreams) = 4; Past, Present (Dreams) = 5.
4	MEDCON	No = 0; Yes = 1.
5	DRUGS P	No = 0; Yes = 1.
6 and 7	DRUGSNP	6-No & 7-No = 0; 6-Yes or 7-Yes =1; 6-Yes & 7-Yes = 2.
8, 9, 10	SLEEPT	$T \leq 7 = 1$; $7 < T < 9 = 2$; $T \geq 9 = 3$.
11, 12, 13, 14, 15, 16, 17, 18, 19, 21	SLEEP Q	Sum Total from each question to get SLEEP Q 11. 0 -- 15 = 0; 15^{+}--30 = 1; 30^{+}--45 = 2; 45^{+}--60 = 3; 60^{+} = 4; 12. 0 -- 1 = 2; 2 = 1; 3--7 = 0; 13. 0 = 0; 1--2 = 1; 3--7 = 2; 14. 0--2 = 0; 3--7 = 1; 15. 0--1 = 0; 2^{+} = 1; 16. Add number of nights to score 17. A = 0; B = 1; C = 2; D = 3; E = 4; 18. A = 0; B = 1; C = 2; D = 3; E = 4; 19. A = 0; B = 1; C = 2; D = 3; 21. A = 0; B = 1; C = 2; D = 3.
20 and 22	DISTRAC	Sum 20 and 22 to get DISTRAC 20. Yes = 0; No = 1. 22. Many = 0; Few = 1.
23	REC DIFF	Yes = 0; Sometimes = 1; No = 2.
24	REC TYPE	A = 3; B = 2; C = 1; D = 0.

Questions	Variable Name	Scoring Code
25	INTEREST	No = 0; Sometimes = 1; Yes = 2.
26 and 27	MOOD 1	A, Yes = 1; B, Yes = 2; C, Yes = 3; A, No = 4; B, No = 5; C, No = 6;
28	FTONE	A = 1; B = 2; C = 3; D = 4.
29	EVERYDY	A = 1; B = 2.
30	DVIVID	A = 4; B = 3; C = 2; D = 1; E = 0.
31	DREAM Q	A = 2; B = 1; C = 0.
32	SENSES	Sight = 1; Hearing = 2; Touch = 3; Smell = 4; Taste = 5.
33	TIME	A = 1; B = 2; C = 3; D = 4.
36	WATER	No = 0; Yes = 1.
37	DTYPES	No = 0; Yes = 1.
38	DEMOT	Neutral = 0; Positive = 1; Negative = 2; Mixed = 3.
39	EMOT INT	A = 0; B = 1; C = 2; D = 3; E = 4.
40	MOOD 2	No = 0; Yes = 1.
41	LUCID	B = 0; A = 1; C = 2.
42	COLOUR	A = 0; B = 1; C = 2; D = 3; E = 4.
43 and 44	PERS FAM	AA = 1; AB = 2; AC = 3; BA = 4; BB = 5; BC = 6.
45	PASS ACT	A = 1; B = 0.
46	SET FAM	No = 0; Yes = 1.
47	D AWAKE	No = 0; Yes =1.
48	D PREF	A = 1; B = 0.
49	D RECURR	No = 0; Yes = 1.

Myers-Briggs Type Indicator

First Stage Samples:

Dream Contributors

N = 122

Type Table

Legend: % = percent of total choosing this group who fall into this type.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 9 %= 7.4	ISFJ N=10 %= 8.2	INFJ N= 9 %= 7.4	INTJ N= 9 %= 7.4	JUDGING
ISTP N= 6 %= 4.9	ISFP N= 4 %= 3.3	INFP N= 18 %= 14.8	INTP N= 5 %= 4.1	PERCEPTIVE — INTROVERTS
ESTP N= 6 %= 4.9	ESFP N= 1 %= 0.8	ENFP N= 12 %= 9.8	ENTP N= 6 %= 4.9	PERCEPTIVE — EXTRAVERTS
ESTJ N= 4 %= 3.3	ESFJ N= 9 %= 7.4	ENFJ N= 10 %= 8.2	ENTJ N= 4 %= 3.3	JUDGING

	N	%
E	52	42.6
I	70	59.4
S	49	40.2
N	73	59.8
T	49	40.2
F	73	59.8
J	64	52.5
P	58	47.5
IJ	37	30.3
IP	33	27.0
EP	25	20.5
EJ	27	22.1
ST	25	20.5
SF	24	19.7
NF	49	40.2
NT	24	19.7
SJ	32	26.2
SP	17	13.9
NP	41	33.6
NJ	32	26.2
TJ	26	21.3
TP	23	18.9
FP	35	28.7
FJ	38	31.1
IN	41	33.6
EN	32	26.2
IS	29	23.8
ES	20	16.4

NOTES:

Myers-Briggs Type Indicator

Dream Diary Group.
Number of Dreams
Per diary Night.

N = 30

Grand Mean = 0.65

Type Table

Legend: % = percent of total choosing this group who fall into this type.

SENSING TYPES with THINKING	SENSING TYPES with FEELING	INTUITIVE TYPES with FEELING	INTUITIVE TYPES with THINKING	
ISTJ N= 0 %=	**ISFJ** N= 2 %= 6.7 M = 0.54	**INFJ** N= 3 %=10.0 M = 0.76	**INTJ** N= 2 %= 6.7 M = 0.83	JUDGING
ISTP N= 0 %=	**ISFP** N= 0 %=	**INFP** N= 8 %=26.7 M = 0.61	**INTP** N= 2 %= 6.7 M = 1.48	PERCEPTIVE — INTROVERTS
ESTP N= 2 %= 6.7 M = 0.71	**ESFP** N= 0 %=	**ENFP** N= 3 %=10.0 M = 0.47	**ENTP** N= 3 %=10.0 M = 0.67	PERCEPTIVE — EXTRAVERTS
ESTJ N= 0 %=	**ESFJ** N= 2 %= 6.7 M = 0.29	**ENFJ** N= 2 %= 6.7 M = 0.46	**ENTJ** N= 1 %= 3.3 M = 0.37	JUDGING

	N	%	M
E	13	43.3	0.52
I	17	56.7	0.76
S	6	20.0	0.51
N	24	80.0	0.69
T	10	33.3	0.84
F	20	66.7	0.56
J	12	40.0	0.57
P	18	60.0	0.70
IJ	7	23.3	0.72
IP	10	33.3	0.78
EP	8	26.7	0.60
EJ	5	16.7	0.37
ST	2	6.7	0.71
SF	4	13.3	0.41
NF	16	53.3	0.59
NT	8	26.7	0.87
SJ	4	13.3	0.41
SP	2	6.7	0.71
NP	16	53.3	0.70
NJ	8	26.7	0.65
TJ	3	10.0	0.68
TP	7	23.3	0.91
FP	11	36.7	0.57
FJ	9	30.0	0.54
IN	15	50.0	0.79
EN	9	30.0	0.52
IS	2	6.7	0.54
ES	4	13.3	0.50

NOTES:

Appendix XXIV

Dream Content Scoring Card

0	S	CHAR	AGRESSIVE	FRIENDLY	SEXUAL	ACTIVITIES	SH	WORDS
	O	IMKA						192
	I	ICZZ						
	I	IFSA						
		9MOA						

0	DDQUES	FAIL	M-FORT	G-FORT	M	T	N	SY	EMOT	ACTIVITIES	A	R	E
	332111										5	0	0