

THE COMPENSATORY FUNCTION OF DREAMS: CONFIRMATION FROM THE COMPUTER

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INTRODUCTION

Dreams, the manifest pole of an obscure and inaccessible reality, employ a bizarre language which is different from waking language, being made up of images and symbols which lend themselves to various and changing readings and interpretations. Indeed, like every effort to measure things in the realm of psychology, the study of dreams encounters the problem of the difficulty of processing and evaluating a series of non-verbal, unquantifiable data. Considered in this light and made up as they are of images, dreams are affected by a sort of ontological flaw: how can one understand or speak of the oneiric image? With what criteria can one treat it without destroying the very object of one's studies? The latest neurophysiological studies suggest that this difficulty of approach regarding the oneiric datum is linked to the genesis itself of dreams. Indeed, dreams appear to be the manifestation of an idea-originating system which is different from that employed during the waking state.

Every effort to analyze an image or to pinpoint it for measurement encounters something like the Heisenberg uncertainty principle - whereby if one tries to measure the position of a particle, one cannot quantify its movement- a problem, it must be noted, which is not so much linked to the methods of measuring as to the very essence of reality. Indeed, at the subatomic level, reality appears to have a double nature which is both corpuscular and made up of waves. It is the conscious observer's measuring intervention which provokes the "wave collapse" and the crystallization of reality on one of the two levels.

This duality recurs in the concepts of the main schools of thought to have concerned themselves with the oneiric process. The Freudian school sees dreams as masked messages susceptible to a *reductio ad primam causam* and therefore potentially decodifiable and explicable. The Jungian concept, on the other hand, attributes to dreams the characteristic of a basic unknowableness; as the psyche's main source of symbols, the dream makes use of an inexpressible primary language which cannot be completely translated. This different concept is more closely linked to the presence of a bipartite structure of the psyche or, rather, the existence of a dual coding system for the elaboration of internal experiences, than to a real difference (of materials being elaborated)***.

In fact, while the way the mind processes experiences in the present is necessarily determined by past events in a genetic sense, it does not necessarily reflect how those events occurred. It is the verbalization process, by its very nature, which distorts the expressed representation of experiences in its attempt to generate a coherent and comprehensible account by altering the unstable and unstructured fragments of the memory's storehouse. This is even more so the case with dreams insofar as one is dealing with an internal experience which has to be referred to the memory in the morning and therefore in a certain sense "recreated" by the logical structures of consciousness so as to be made capable of recall and a verbal-logic form of processing. It is these logical structures which provoke the "wave collapse" and fix the dream on a verbal/mnemonic level which tends to occupy the whole field of perception.

Taking such peculiar qualities of the oneiric datum as a starting point, one has to acknowledge that the Jungian concept of the dream as a datum which is not disguised but simply expressed in a different code, corresponds more closely to the nature of the phenomenon than does the Freudian concept.

The latter, indeed, looks at the dream as a masked object which has to be unveiled in order to arrive at the "reality" of the oneiric datum, without considering that this may be a noumenon and that the rules of the dream work (which is the expression, according to Freud, of the masking work in progress) are all rules which are

very probably referable to the process of verbalization itself: the only door through which the dream may become a communicated event.

In order to better understand this hypothesis, it is useful to go back to the Dual Coding model (Bucci 1985): this assumes that verbal and non-verbal pieces of information undergo sensorial and apperceptive elaboration and are then stored in separate, specialized systems. Verbal information is codified and stored in a linguistic form whereas non-verbal information is stored in an analogical form in the perceptive canals: the perceptive system incorporates all the information recorded from every sensory canal and the emotions are closely linked to this system.

This theory seems to clarify the double nature of the dream better than other theories: on the one hand, the dream is seen as a partly unknowable object which is lived as a totally personal and incommunicable phenomenon and on the other, it is seen as an event which is "translated" into a digital, quantitative code which, as it works to make the unsayable communicable, necessarily modifies and alters it. (wave collapse)

It is here that the peculiar nature of the dream emerges quite conspicuously. It is a "border event"; the interface between two contiguous but separate universes.

The dream may thus be considered the expression of two levels: one which is highly structured and the other apparently more regressive but which in reality uses other "forms" of elaboration and storage.

Of the two systems for the codification of experiences, we only perceive the verbal one because it is into this code that the internal experiences are translated. In truth, however, what we perceive as a unity is a dual reality which is always composed of correlated and opposing parts.

In our research we have used an unconventional approach to the study of dream activity, considering the dream to be like a text produced by the dreamer's unconscious during the night. In order to express his thoughts, man initially used a pictographic-ideographic form of writing in which the sign was the idea itself. He then progressed to a syllabic-alphabetical form in which the sign was transformed into a basic element which only finds its

meaning when correlating with other signs in the formulation of words. Tracing a strict parallel between writing and dreams, we can admit of the co-existence of two modes of expression for dreams just as for writing: an alphabetical and a pictographic one. The construction of an oneiric scene is the result of a complex integrating activity in which the absolutely individual value of an image (the "Pictographic" level) is indissolubly mixed with its nature as an object inserted within a system of structurally meaningful relationships (the "Alphabetical" level).

Taking this perspective, we can acknowledge two levels on which the dream itself may be read:

- * the alphabetical or verbal level: the single, oneiric image, like single phonemes, acquires a value and a meaning only if linked together with other images so as to form a message-phrase;
- * the pictographic or imaginative level: every single image has its own basic meaning which is the expression and manifestation of deeper levels of the unconscious, that is, of the Jungian archetypes.

The purpose of this research was to gather the absolutely individual value of each oneiric image (its pictographic level) whilst nevertheless taking into account that this is inserted within a system of structurally meaningful relationships (the alphabetical level).

The two levels or representational systems are naturally closely interactive and linked on the structural plane. Indeed, on the one hand, the image cannot be univocally assimilated to a linguistic sign and on the other it is evident that the high level of structuring within the constructs of the imagination requires the intervention of the Ego's superior logical functions with their capacity to integrate material coming from the external world with that of subjective derivation: the sphere of conflict between impulses, the defence system, ways of representing the world and archetypal manifestations.

This work analyzes the dream as the "graphic" expression of a language of the unconscious, using elaboration techniques borrowed from glottology for the structural and stylistic analysis of texts. This technique of automatically calculating verbal occurrences (which, as we have already said, had its birth in the

field of the humanities) constitutes an original method being applied for the first time in the clinical field by our research team: it permits the extraction of information from apparently chaotic and unstructured material such as, for example, that of dreams.

MATERIAL AND METHODS

The research was carried out examining approximately 600 dreams in all, coming from 4 Borderline patients who had previously been classified according to age, sex, school attendance, civil status, social standing and personality.

The dreams were gathered by the same examiner in the morning and transcribed exactly as they were recounted without any alterations or corrections.

TACT (Text Analysis Computing Tool) was used to process the material collected. TACT is a programme which was developed at the University of Toronto for the structural analysis of texts. It had its birth as the result of the need, initially only in the field of literary criticism, for an objective method of studying the works of different authors without being bound by the personal approach of individual researchers.

It is therefore in the linguistic and philosophical field that this methodology was widely tested before being developed subsequently by the National Research Centre Laboratory of the European Intellectual Lexicon and only in 1989 applied in an original way in the field of psychology (Zanasi et al).

By means of a particular collection of statistical methods known as Multivariate Analysis (MVA), it is possible to define the "dimensions" of a literary text and obtain information on the contents of the text itself and on its main themes. For this reason, the application of this specific software to a text allows not only the identification of single individual words but also that of the meaning in that particular context via the statistical processing of the meaningful correlations between different key words. It has thus been possible to extract this type of information despite the bizarre, chaotic and unstructured nature of dream material.

The process of elaborating the data involved various successive operations:

* the introduction and memorization on magnetic disk of the oneiric material collected (keeping rigorously to the terminology, form and structure used by the subjects participating in the research). Once the memorization process was finished, the computer was able to supply a transcript ("listing") of the data acquired.

* the listing in alphabetical order of all the words contained in a text, showing the absolute frequency with which each term appears and its position in the text. This list is called a "word index";

* the drawing up of the concordances i.e. of the word index inserted in the context in which the word was located. In this way, the first of the lists used in this research is obtained; the list of KWIC (Key Word In Context) concordances which is made up of lists of symbol-words or key- words (i.e. the most meaningful words amongst those which appear most frequently) inserted in their original context.

* the individuation of each key-word's host-sentence (the sentence is extrapolated, singling out marked points of punctuation). In this way the second list of concordances is obtained: this is the list of "sentence concordances";

* the selection of the lexical units and their subdivision into:

** functional or empty words - i.e. words which have a purely grammatical function in the sentence (articles, conjunctions, prepositions);

** lexical or full words- i.e. words which present an autonomous semantic content which to a certain extent is independent of the host-sentence (nouns, verbs, adjectives, adverbs).

The functional words were then cancelled manually whilst the most frequently occurring lexical words were chosen.

Two ulterior groups of lists were then formulated and compiled by the computer:

* frequency list in alphabetical order where beside each key-word were listed the

absolute and relative frequencies with which it appeared in the texts under examination:

* frequency list in decreasing order where the key-words are set out in the order of decreasing frequency. This is the most significant group for the purposes of this study.

The methodology described above permits the underlining of the hierarchical position that symbol-words occupy in dream material by reference to their absolute and relative frequency of occurrence.

RESULTS

Starting from a selection of 600 dreams taken from 4 patients , this research allowed the selection of 15,960 symbol-words from a context of 27,540 words. The most significant terms (that is, those characterized by the highest frequency) are published in table 1.

DISCUSSION

The frequency with which images such as the Mother, the House, the Father, the Earth and the Cross as a religious symbol keep appearing within the bulk of the dreams examined seems to confirm the Jungian hypothesis of the existence of a collective unconscious which expresses itself, through dreams, by means of archetypal images. The latter are the expression of primitive forms of human behaviour and are fundamental and recurring themes to be found in the most disparate societies and cultures. The significative words (MOTHER, HOUSE) constitute a return to the fundamental problem of psychic discomfort (the subjects of the study could be classified as Borderline Personality Disorder) as a condition in which there is a danger threatening the subject's identity and an alteration of the identity itself.

We can see from this group of dreams how the term MOTHER highlights a symbiosis with the maternal. This term can be read as the expression of an archetypal valence: in the midst of the extreme difficulty experienced by the patients, the voice of the archetypal generator of life itself, the Great Mother, emerges from the unconscious, guaranteeing immortality and protection.

The frequency with which the word "HOUSE" appears seems to be demonstrating symbolically the weakness of the ego structures in these patients. The fundamental problem of the fragility of the patients' own most personal, interior house is thus referred to and represented via the symbol of the house.

In the same way, it seems possible to explain the fact that the pronoun "I" recurs so frequently in our subjects' dreams as being part of a mechanism to compensate for the grave attack on these patients' identity. The interior disturbance linked to the Borderline condition provokes a weakness in the structure of the Ego, thereby causing a profound anguish. For this reason, the elevated frequency of the term "I" in this linguistic context seems to assume a self-healing significance via the compensatory mechanism which, according to Jung, is the basis of the dream work.

(It is necessary to note a point of language here. The key-word "I" occupies first place in the list of absolute frequency as set out in table 1. This could appear normal to a native English speaker, since, as is well known, it is obligatory to insert the personal pronoun before the verb when constructing a sentence in this language and thus it appears very frequently in both the written and spoken forms. In Italian, however, (the native tongue of the patients under examination in this study) the use of the personal pronoun is optional and, indeed, in the majority of cases, is omitted before the verb because the latter is conjugated in such a way as to nevertheless carry the meaning of one of the various personal pronouns.)

These data confirm the usefulness of our experimental approach to dreams. The technique employed has allowed us to extract from oneiric material a quantity of information on the internal state of the dreamer. This information confirms the Jungian hypothesis of the dream as a "symbolical self-portrait of the internal state of the dreamer." We consider that this method may be used to help deepen our understanding of the mechanisms and purposes of the dream activity as well as having a possible application in the field of clinical diagnosis.

SUMMARY

The authors propose a new way of approaching the dream phenomenon, considering the dream as the graphic "expression" of an unconscious language and the oneiric symbols either as elements of an alphabetical writing which organizes itself as message sentences or as elements of an ideographic-pictographic writing in which every single image has its own basic meaning. Starting from these suppositions and using computer technology, the authors analyzed 600 dreams coming from 4 patients and selected 15,960 significant terms. The frequency with which certain images, e.g. the mother, the father, the earth, the house etc recurred in the dreams under examination corroborates the existence of invariant elements in dreams and thereby confirms the Jungian theory of a collective unconscious, opening the road to further research.

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