

# VISUAL THINKING AND SIMILAR PHENOMENA

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## 1. INTRODUCTION

THE aim of this paper is to investigate some para-hallucinatory visual phenomena, to classify them into certain groups, to describe their phenomenology, and to try to explain their psychodynamics and their significance in everyday life.

## 2. "VISUAL", "ARCHAIC" AND "AUTISTIC" THINKING

Various visual experiences of a para-hallucinatory nature represent the pseudo-perceptual projections into the visual space of the subject's subconscious wishes, fears and vague notions (cf. Lukianowicz, 45). These, in turn, are a part of our subconscious *thought-content*. Thus, different visual experiences, representing such wishful, vaguely formulated or disguised thoughts, are, in fact, a pictorial or visual expression of the thought-process. This visual way of thinking is usually complementary to the "ordinary", more common, way of thinking by means of words, i.e. to verbal thinking.

Each of these two fundamental ways of thinking possesses certain characteristic features. Thus, *Verbal Thinking* is the product of the conscious part of the mind. It is formed of ideas expressed in words, is directed by logical associations, and aims at the solution of certain problems in real life, by means of a deliberate reasoning and calculation. The other type of thinking, employing visual images for its expression, or, as we propose to call it, *Visual Thinking*, is the language of the unconscious mind. It usually has a compensatory mechanism, a wishfulfilling character, it indulges in fantasy, and often is detached from reality.

As visual thinking arises from the unconscious mind, it often appears to be entirely "independent" of the conscious mental content of the thinker, and displays a considerable "*autonomy*" (e.g. hypnagogic imagery; eidetic obsessional imagery, etc.). In some extreme cases the subject indeed possesses no control over these pictorial "thoughts", and can neither abolish them, nor change their contents. Because of this dissociation from the conscious part of his mental life, these experiences are often felt by him as "foreign" to his "normal" (i.e. conscious) thinking, and do not appear to be an integral part of his personality (an analogy with the "voices" in auditory hallucinations).

Sometimes, particularly in their more bizarre form (e.g. as occurring in psychoses, or in dreams), these visual phenomena seem to stem not from the unconscious mind of the given individual, but from the racial, or *collective unconscious* (cf. Jung, 32, 33). They are identical with those often met with in myths and folklore, and are called "*archaic*" or "*archetypal images*".

According to Jung, we all harbour, in a latent form, these archaic modes of thinking. However, they are repressed in the unconscious strata of the mind, and normally, in waking life, they only occasionally break through

the surface of consciousness, disguised as certain irrational fears, some bizarre fantasies, vague and odd notions, peculiar "visions", etc. However in sleep, when the censorial function of the ego is not at its full waking strength, they may emerge from the mysterious darkness of the unconscious in the form of "bad dreams", nightmares and "sleep-hallucinosis". Yet only when the ego becomes considerably weakened, as for instance in a spontaneous psychosis, or in an experimentally (cf. Prince, 57, 58, 59, 60), artificially induced "model psychosis" (cf. Fischer, 15, 16), or in some intoxications (e.g. hashish, mescaline and other hallucinogenic, or "psychotomimetic" drugs; cf. Osmond, 52, 53, 54; Peretz *et al.*, 56; Sai-Halász *et al.*, 61, etc.), may these archaic images dominate the whole conscious mental content in the form of fantastic "visions", bizarre hallucinations, and odd delusions, without an insight into their unreal nature.

It has been assumed that wishes and fears are the basis of visual thinking. Similarly, "Wishes and fears constitute the contents of *autistic thinking*" (Bleuler, 7), which "is directed by affective needs", is performed "in symbols, in analogies, in fragmentary concepts, in accidental connections", and "is the source of the delusions . . . and all the other pathological symptoms". Further, like visual thinking, autistic thinking, which Bleuler regards as "an exaggeration of a physiological phenomenon", is normal in children, and, as it is in the case of visual thinking, "A large part of poetry, our tales and myths, have their source in this kind of thinking" (Bleuler, 7). Finally, as in visual thinking, ". . . we find evidence of inadequate or absent distinction between fantasy and reality in dreams, in states of absent-mindedness, in children who tell lies without knowingly lying, and in the 'savage'."

Autistic thinking has also many common features with archaic imagery. Thus, like the latter, autistic thinking is met with in dreams, in hypnagogic and hypnopompic imagery, in day-dreams, and also in individuals in whom the higher mental faculties (i.e. the ego) became temporarily or permanently weakened or deranged, as e.g. in some intoxications, in artificially induced or in spontaneous psychoses, as well as in prolonged sensory deprivation (cf. Vernon *et al.*, 71).

McKellar (48) divides the thinking into the following two groups: (1) "R" (reality adjusted) *Thinking*, a process of reasoning, logical, realistic and prejudice-free; and (2) the Bleulerian "A" (autistic) *Thinking*, characterized by "the inner, fantasy life", and defined by Warren (73) as "a type of thinking dominated by subjective trends, the material being uncorrected in its essential features by objective standards, e.g. day dreams".

The resemblance between our verbal and this "R" thinking, on the one hand, and our "visual" and the "A" thinking, on the other hand, is quite obvious, and the conclusion may be drawn that they are either closely related, or identical.

*Visual thinking* is the phylogenetically and ontogenetically older and more primitive type of thinking, produced, motivated and directed by emotions, unconscious wishes, and fears. Hence it is irrational, illogical, and unrealistic. This non-verbal, or rather *pre-verbal way of thinking in visual images*, is characteristic of the pre-literate social groups. In this respect it shows a striking similarity with the *pictorial writing*, through which all human races seem to have had to pass in their evolution to a more advanced way of writing, by means of signs and symbols. Yet, even today the pictorial writing survives as the only form of writing in some primitive social groups,

whilst the strictly symbolical *verbal writing* is the accepted form of communication in the more advanced and more civilized societies (cf. also Tylor, 69). In our own culture the pictorial way of "writing" is still used in the elementary school books, as a useful introduction to the more difficult representation of objects by means of written symbolic signs.

The pictorial way of forming and expressing their thoughts is also quite normal in *children* in the pre-school age, before they learn to express themselves in the conventional, but more difficult and more mature, way, by means of spoken or written words. However, this form of pictorial, visual, thinking loses its rationale in the period of the completed mastery of the spoken, and later of the written, language. Hence it gradually retreats and is substituted by the verbal, at first concrete, thinking, which in turn becomes increasingly abstract. The disappearance of visual thinking is enhanced by the "emphasis upon abstract thinking in higher schools" (Allport, 1). Its full survival in adult life is not only extremely rare, but rather abnormal. It then may be regarded either as the *fixation* at, or as a *regression* to, a less mature, more primitive, pre-verbal type of thinking. Hence Kroh (41) called the poets with a very strong visual imagery "grown-up children".

### 3. CLASSIFICATION

With regard to its structural *contents* visual imagery may be divided into two basic groups:

(a) *Formless images* are experienced either on closing the eyes in broad daylight, or as an introductory phase to more highly organized hypnagogic images, and consist of: spots of light, bright patches, shiny spots, bright spots, stripes, clouds of light, colourful spots, blots of colour, patches of colour, etc.

(b) *Formed images* may be sub-divided into the following subgroups: (1) *Human faces* and whole human figures: they may be "seen" either in broad daylight, as in after-images and eidetic images, or before falling asleep, as in hypnagogic images. Many subjects often "see" human figures in a setting of a complex scene, resembling old silent films (e.g. in eidetic images, obsessional eidetic images, in hypnagogic and hypnopompic images and in dreams). Occasionally such "visions" may be most alarming and disturbing, and so realistic that the patient would seek reassurance, that "they are not real" (e.g. our patient "C"). Sometimes such phenomena appear spontaneously, without any conscious effort on the part of the subject, on other occasions he might "conjure" them deliberately (e.g. memory images, eidetic images). In view of the very frequent seeing of human faces in para-hallucinatory experiences Leaning (42) assumes the existence of "a special face-seeing propensity in the mind". (2) *Animals*: those seen in hypnagogic images "rarely act or move or express emotion" (Leaning). Their appearance ranges from "grotesque" to "extremely ugly and awe-inspiring". They are often perceived in natural colours. Those seen in other visual experiences are sometimes described as "grotesque" or "pre-historic" (e.g. in visual imagery in sensory isolation). They are frequently seen in a diminutive form. Animals seen in day-dreams usually possess very realistic qualities as far as their shape, size and colour is concerned. (3) *Scenes*: in hypnagogic imagery they vary "from a simple scene with a single person, to a very complex with many people moving about and acting" (Leaning, 42), and their contents are usually of pleasant character; on the other hand, the scenes visualized in wakeful obsessional imagery are mostly of an unpleasant, sometimes of a threatening

or terrifying nature (cf. our patient "C"). The scenery in dreams, like in modern plays, is of a secondary importance, and is usually reduced to a sketchy background. The main dramatic effect rests with the performers. (4) *Landscapes*: They are very common in the hypnagogic imagery of adults, and are usually described in superlatives, such as "most charming", "extremely picturesque", "glorious", etc. In obsessional visual imagery scenes and landscapes may constitute the kernel of the recurrent "visions". Here they usually represent certain places endowed with some emotional significance, either of pleasant and sentimental nature (e.g. images of places connected with one's childhood), or, more often, of a terrifying character, brought about by some traumatic experiences (e.g. places where one witnessed an accident, or a disaster).

Several other criteria may be employed in the classification of the parahallucinatory visual phenomena though none of them is wholly satisfactory. Thus, one may use as a guiding principle the *degree of consciousness* retained during the experience, and accordingly group the visual phenomena into: (1) the "*waking fantasies*", which include phenomena occurring during the full wakefulness (e.g. the eidetic imagery); and (2) the "*hypnotic fantasies*", occurring either in sleep, or in the drowsy state immediately preceding sleep, preceding the return to full wakefulness after sleep (i.e. dreams, hypnagogic and hypnopompic imagery). Finally, one can classify visual phenomena on the basis of their *increasing structural complexity*. A combination of these two principles will be applied on the following pages.

#### 4. PHENOMENOLOGY

##### (a) WAKING VISUAL PHENOMENA

###### 1. *After Images*

They are a physiological phenomenon, based on certain functional peculiarities of the optic organ, and are inherent to all mankind. An after-image consists of two phases, a positive and a negative one. The *positive image* is due to a continued activity "of receptors and neural processes after the stimulus has gone. It has the same colour and brightness", as the stimulus itself (Munn, 51). It lasts only a short while, and is replaced by a *negative image*, which is complementary to the stimulus in both hue and brightness. In everyday life one is not aware of either phase. However, in some unusual or morbid conditions (e.g. in obsessional states) after images may persist unduly long; further, they may be brighter and more colourful, and may show more details, than the mere physiological after images normally do.

There are two schools of thought, with two different interpretations, of this phenomenon: (1) Drever (12) thinks that "after image" is a term "erroneously used for after-sensation". Allport also believes that: "after-images belong to *sensation*, and have nothing whatever to do with memory". (2) The Marburger School regards the after images as the lowest type of progressive series of "Gedächtnissbilder" (i.e. *memory-images*), and Busse (9) suggests that after images, eidetic images and memory images represent progressively higher stages in a "teleological continuum".

###### 2. *Memory Images*

They have been defined by Drever as a "revival of former experience of an object in the absence of the object itself". His "*primary memory image* is the very vivid memory image revived immediately after the perceptual experience of the object".

Memory images are closely related to after images and are a direct continuation of the former on a time continuum: after image—primary memory image—memory image. The duration in time, the vividness, and easiness of recall of memory images seem to depend on the *interest* and the *emotional significance*, which the particular memory image represents to the individual. In some obsessional states memory images may become unusually persistent (e.g. the face of Mr. “F” ’s foreman), may show a prolonged duration and may retain their primary vividness, colour and “microscopic clearness of detail” almost indefinitely.

A memory image may be a voluntary or an involuntary one. The latter is usually connected with an emotionally charged event, or a traumatic experience, and it often shows an obsessional persistency. In this respect memory images resemble eidetic images, where, according to Kroh (40), “it is . . . the greater *interest* which one object possesses in comparison with another which gives it preference” in the arousal of an eidetic image. Allport calls this factor the “*affective tone*”, and Jaensch (29, 30, 31) the “*philotropic factor*”. Similarly the varying interest on the part of the “observer” is instrumental in variations of contents in visual phenomena precipitated by a prolonged sensory deprivation (cf. Grünthal, 22, 23).

The factor of interest also plays a causative part in the origin and the contents of some hypnagogic images. Thus, according to Leaning, sometimes “some scene has been vividly impressed on the senses . . . during the day, and an absolute reproduction takes place spontaneously against the background of darkness”. As examples she mentions Warcollier, who visualized a test-tube, and “a mineral substance which he had been studying in his laboratory”, and the report of Dr. Hyslop about a student who watched a colourful parade of Irishmen on St. Patrick’s Day on a street in New York, and after a while “saw” it all over again on the dark background of the staircase. Leaning adds that “Myers classes this as a cerebral after-image”; we would rather regard it as an example of memory image (or even as Drever’s primary memory image).

In spite of some similarities, memory images and eidetic images should not be confused with each other. Urbantschitsch (70) underlines the following differences: in *memory images* “a former visual perception is merely imagined”, whilst in *eidetic images* “the original object is actually ‘seen’”. Further, the richness in detail and clearness in eidetic images surpasses both the memory image and the after image, and “This characteristic . . . affords perhaps the best ground for distinguishing the eidetic image from the memory image” (Allport, 1).

### 3. *Eidetic Images*

By eidetic imagery Drever understands “a type of vivid imagery . . . projected into the external world”. Klüver (37, 38) regards as an “eidetic” an individual in whom the “subjective (visual, auditory, etc.) phenomena assume a perceptual character”.

Aetiologically and phenomenologically eidetic images are closely related to the just reviewed phenomena. Jaensch divided them into two groups: (1) “The *after-image-like eidetic images*”, often of an obsessional nature, frequently with an unpleasant or frightening content, which “have only a slender connection . . . with the rest of the mental life”, and because of that are felt by the patient as not belonging to him, and as being “foreign” to his usual “self”; and (2) “*memory-image-like eidetic images*”, “. . . flexible and



changeable as memory images, willingly and smoothly following every change in the flow of ideas" (Jaensch). In Jaensch's view, these two types of eidetic imagery are correlated with two particular constitutional types, "T" and "B", which vaguely resemble Kretschmer's (39) schizothymics and pyknics, and as such are a permanent characteristic of the given individual.

The resemblance between "memory-image-like eidetic imagery" and visual thinking is striking indeed, and the conclusion may be drawn that these eidetic images are, in fact, ideas and *thoughts expressed in visual images*, and that they are identical with our visual thinking. There is hardly any important dynamical or phenomenological difference between these two phenomena, apart from the fact that memory-image-like eidetic images often may be more strictly based on visual memory, than are the free and creative images constituting visual thinking.

These eidetic images also seem to be identical with the visual experiences of the so-called "visualizers" (cf. Dewhurst, 11), i.e. individuals endowed with an unusual ability of "seeing" their mental images projected in the external visual space, with a sensory clearness and a perceptual intensity. (E.g. it is alleged that the German poet Goethe possessed a visual imagery, of almost a hallucinatory intensity and clearness. In his young days Goethe also was subject, on one occasion, to another para-hallucinatory experience, when one night he "saw" his "double"; cf. Lhermitte, 44.)

Eidetic images are perceived in broad daylight, almost exclusively by *children*, often of a high intelligence (cf. Schmitz, 62). Only exceptionally they also may be met with in some adults (cf. Galton, 18, 19). It seems that the eidetic imagery mostly persists, in an appreciable degree, only in those "normal" adults, who permanently have to use their visual imagination for their professional activity (as, for instance, painters, sculptors, poets, choreographers, script-writers, etc.).

Although Urbantschitsch makes such a sharp distinction between the eidetic images and the visual memory images, other writers see a close relationship between these two phenomena, and Allport even believes that "there may at times be a substitution of the eidetic images for the memory images, as in the case of individuals who have the ability to visualize whole pages of written material without the slightest effort at 'learning'". (A good example of this is to be found in our patient "H".) Allport concludes: "eidetic imagery is only one form of imagination, and exists during childhood along with the ordinary 'reproductive' and 'productive' varieties of imagination."

#### 4. Imaginary Companions

"They are mental images projected into the visual space and 'seen' in the perceptual field by *children* deprived of love and affection" (cf. 45), as well as by solitary children, starving from lack of playmates (cf. Svendsen, 66).

Their psychodynamics are of a *compensatory* nature: (1) "By means of imaginary companions and his identification with them the rejected . . . child can share in a vicarious way in the love and affection which his parents . . . shed upon the imaginary companions" (45); (2) An imaginary companion may represent a substitute for a desired playmate to a solitary child, endowed with a vivid and creative visual imagery.

Here is an *example* to illustrate the last point: the little son of one of Hicks's (26) close friends, an intelligent and sensitive child, invented for himself two imaginary "play-fellows", "Binny and Nurny". Until the age of 7 he

conversed and "played" with them, and they were so real to him that once, when his mother was about to take her seat at the breakfast table, he exclaimed: "O, please, not that chair. Don't you see that Nurny is sitting on it?", thus obliging her to seek another (26).

In the next *example*, Dolores, a rejected child of 7½, tries to share in the love, which, she thought, her mother might have had for her imaginary companions, both of the sex desired by the mother, and by the stepfather, who ". . . expressed his preference for a boy many times in Dolores' hearing" (Bender and Vogel, 5). Dolores alleged: "I have two brothers. Their names are Tom and Harrison. My mother likes those names. They are not bad like me. They are very bright boys too . . .". "Well, yes, they're make-believe."

Bender and Vogel regard the imaginary companions as "a psychological mechanism used by the child to supplement deficient environmental experiences and emotional inadequacies", and Harriman (25) as "a creative impulse, like fairy-tale dramatizations, evanescent phantasy-making, and imaginative accompaniments of solitary play". The school-education represses these tendencies in children, and "real playmates cause these phantasies to disappear".

Although imaginary companions are most often met with *in children*, their occurrence is by no means confined to childhood. Thus Harriman has found them in some young *adults*, and in a modified form, they appear in visual fantasies accompanying masturbation at any age (cf. Lukianowicz, 47). Here is an *example* of an imaginary companion in *senility*:

*Case 1.* Mr. "A", aged 78, a retired postman, suffering from a mild senile deterioration was bedridden with an extensive contracture and atrophy of both legs. He was almost blind and deaf, and could neither read, nor hear the wireless. Thus his contact with his environment was utterly restricted. To compensate for this, he created an imaginary companion: for some time it was noticed that he "saw", and conversed with "a pal of mine", whom he called "Walt". It was evident that "Walt" was the projection of the patient's idealized ego: he was "not too old", was "smart and strong", and he "could walk as much as he liked". He was "a pal, a postman", and the patient had long and friendly chats with him. On the other hand, when "A" sometimes wetted or soiled his bed, it was not his own, but . . . "Walt's" misdoing. Then he addressed his former "pal" officially as "Walter Wycomb", or even "Mr. Wycomb". On such occasions poor "Walt" would turn into a scapegoat: "He is a bad man. He is no longer a friend of mine. He is a dirty old man. He soiled my bed." The versatility and usefulness of this imaginary companion was astonishing, and his wishfulfilling and compensatory nature was beyond any doubt.

This case resembles a female patient described by Weinstein *et al.* (74), who, after an operation for a brain tumour, claimed to possess two "twin" sons: "Willie", a personification of all the good qualities, and "Bill", who embodied all the bad traits and trends. (In fact, she had only one son, William.) She exemplified the phenomenon of a "reduplication of person" (74), analogous to the compensatory reduplication of a paralysed body part.

The *insight* in patients with imaginary companions resembles the one met in other similar phenomena, in particular in eidetic imagery, and in autoscopy: on a closer examination it may usually be demonstrated that the subjects concerned are "privately" aware of the unreality of their pseudo-perceptions and of their "make-believe" character. This notion, although at first denied, seems to be very near to the surface of consciousness.

##### 5. *Autoscopic Images*

These have been described by the present author in a separate paper (cf. 45), and will be dealt with here only very briefly. Autoscopy has been defined as "a complex psychosensorial hallucinatory perception of one's own

body image projected into the external visual space" (45). Some writers (e.g. Todd and Dewhurst, 68) regard autoscopy as the expression of "a psychical atavism". Psychodynamically it is closely related to the archaic images, the archetypal visual "thinking". Autoscopical images are of a very brief duration, and in most cases last for a few seconds at a time. They may appear at different intervals, and their course is unpredictable. In some patients they occur only once in a lifetime, in others they may be a daily occurrence.

Autoscopical images possess many features common with other parahallucinatory experiences. For instance, they are always projected externally, and literally "seen" in the visual field, usually with a sensory clearness and vividness. Further, like many other similar phenomena (e.g. memory images, eidetic images), they "behave" with a considerable "autonomy", and a complete disregard for their "original's" conscious effort to make them disappear. They also "ignore" physical laws, e.g. the law of gravity (cf. Lipmann's cases quoted in 45). Here is an *example* of an autoscopical "double":

*Case 2.* Mr. "B", a married man of 44, an electronic engineer, with an I.Q. of 133 during his treatment here (in July, 1959) for an atypical depression, disclosed the following: "In the fight for Arnhem in 1944, I sustained a head injury, and was unconscious for 2 to 3 days. When I came round, I became aware of somebody being present in the room, on my right side, very close to me. After a while I reached out with my hand, but could not feel anything." Ever since he frequently has dimly "seen" somebody, either on his left, or his right side (mostly on the right). "It was like a shadow, or a silhouette of a man", always assuming the postures adopted by the patient, and mimicking all his movements. "At first I thought that it was my own shadow, and I just dismissed it from my mind. But after a few days I noticed that this "shadow" would appear in the wrong place, and on the wrong side, i.e. between me and the source of light". "B" became intrigued and started "watching it". He soon found that, "the 'shadow' would only appear when I was alone in the room. It would turn out on my side, in such a way, that I could see it only from the corner of my eye. If I turned rapidly my head, to take him 'unaware', the 'shadow' would move simultaneously, always occupying the same place in space with regard to my own body." It seemed to appear exclusively on the fringe of "B's" field of vision, so that he could never "see" it full-face. "I then started consciously to dilate my pupils and thus to enlarge my field of vision, so that I might see him more fully. But I still could see him only from profile. Then, one evening, shortly before I left the hospital, it just happened . . . Quite suddenly I could see him, without turning my head or my eyes. It was a sort of 'inner vision'. I could view him from all sides, and see all details of his figure and his clothes, and the features of his face. And then, you can imagine my shock, when I recognized in him *my own features*. It was me, or my 'double', gazing at me, like in a mirror, with a startled eye and a puzzled face." The image disappeared, when the patient closed his eyes, but he "saw" it again, as soon as he opened his eyes. "B" became frightened: "I thought I was going 'barmy'." He was too afraid to impart his secret to anybody. "However, after 2 or 3 days, I picked up my courage, and reported it to my doctor" (or rather to his surgeon, because he was then in a neuro-surgical unit). "He looked at me steadily for a while, and then said, significantly: 'Take it easy man. You will be all right, but if you 'see' yourself again, you just tell me, and I'll send you to another hospital, a special one for this sort of complaint'. I was sure that he thought I was mad, and that he was going to send me to a mental hospital." After this discouraging encounter with his surgeon, "B" never again disclosed to anybody the existence of his visual experiences.

"As time went on, I became so used to seeing 'him', i.e. my 'double', that I became almost unaware of his existence. Only when I think of him, would I perceive him again. Sometimes, for no reason at all, I might at once become aware of him, and 'see' him." At first "B" usually "saw" his "double" only sideways, i.e. his profile, "but now I can see him from any possible position, from behind, as well as from his front, just as if I was walking around him, and choosing the position from which to look at him. He is absolutely identical with me in every detail of his features, expression of his face, his dress and movements." The "double" does everything the patient does in the given moment. "B" accepted the existence of his "other self", and developed a warm affective relationship with him. He regarded "him" as a part of himself, and felt quite happy about their queer "symbiosis": "Often I even consider him to be the better part of myself, a sort of my 'ideal spiritual self', and he often has a beneficial influence on my behaviour." In other words, this "double" acquired all the qualities of a "displaced", or extrajected, ego-ideal. (In this respect it resembles the phenomenon of "reduplication of person", described by Weinstein.) "I get along with him quite well, and often converse with him, just in my mind, not aloud. I would call this an 'internal speech'. I also can hear him in my mind, never with my ears, talking to me, and giving me some advice."



#### 6. *Visual Images in Some Obsessional States*

Any of the just described phenomena may appear, in a varied degree, in certain obsessional states. However, most frequently met there are *eidetic images*, particularly those belonging to Jaensch's "after-image-like" group. In some cases they acquire an obsessional persistence, and recur against the patient's will (as for instance, in some day-dreams, and in some characteristic childish "fears"). Such *obsessional eidetic images* are by no means restricted to a mere reproduction of a previous perception. They often may represent some simple creative imaginary quasi-perceptions, and in some extreme cases may become almost indistinguishable from common visual hallucinations.

The obsessional pseudo-perceptual experiences may be divided into two primary types: (a) *non-verbal obsessions*, including visual experiences (e.g. "I can't get the picture of a graveyard out of my mind"), and auditory obsessions ("expressed by 'I can't get that tune out of my head'", Skottowe, 63); (b) *verbal obsessions* (most often some blasphemous or nonsensical words or phrases), likewise ". . . may appear in the auditory or visual perceptual field; the patient may say it is as if the words were repeated and he could *hear* them inside his head; or he may say that he seems to *see* them in letters before him" (Skottowe, 63). (This last example closely resembles the visual hallucinations of our schizophrenic patient "E", where the printed words jumped out of the mouth of his "policeman".)

It is important to differentiate such obsessional experiences from ordinary hallucinations. Skottowe points out that: "Obsessions are located by the patient in his head", and "comparable remarks apply to visual verbal obsessions". On the contrary, in true hallucinations, the perceived phenomena are almost always projected, i.e. they seem to come from outside the patient's body, and only exceptionally may be localized within his head or other organ. Yet, this is by no means an iron rule. For example, all our obsessional patients quite definitely localized their visual experiences *outside* themselves, projected into the normal external visual space. On the other hand one of our schizophrenic patients insists that he "hears" the "voice of a spaceman" (who hides in . . . the patient's abdomen), *within* his head. Another schizophrenic patient frequently hallucinates "five little rosy piglets. They must be within my head, because when I close my eyes, I can still see them, and that proves that they are in my head. How is it possible, doctor, to have little pigs in one's head?" Hence it may be often extremely difficult to draw satisfactorily a dividing line between certain obsessional visual experiences and "ordinary", or common, visual hallucinations. Only by considering the whole clinical picture one may be able to find, where the obsessional syndrome ends, and the psychosis begins. However in certain, fortunately rare, cases even that may be impossible to state. This particularly applies to the patients, who ". . . may be seen in a transitional phase in which the content of obsessional thoughts is beginning to be projected in the form of delusions or hallucinations" (Skottowe, 63), i.e. where an obsessional neurosis turns, as it were, into a psychosis.

Visual Images in obsessional states usually have their course and duration influenced by the underlying neurosis. On the whole they show the tendency to prolonged duration, with recurrent exacerbations and remissions. Here are two examples of *obsessional visual imagery*:

*Case 3.* Mr. "C", a married man of 52, a commercial artist, had to deal with a liquid containing cyanide in the course of his professional activity. In the Spring, 1956, after the sudden death of his father, "I became afraid that I might contaminate the sandwiches of my friends at work with the cyanide, which could accidentally remain on my hands" (an

obsessional fear). To prevent this possibility, he started a most painstaking obsessional handwashing. However it did not alleviate his phobia. Moreover, "I became afraid that I might bring traces of cyanide on my hands to my home, and poison my wife and my son. Soon I could see myself coming home and contaminating food, and could see my wife dropping instantly dead from this horrible poison" (obsessional visual images). "C" reacted to these "fears" and "visions" with an acute neurotic depression (introjected death-wishes). This, as well as his unpleasant visual experiences, disappeared after treatment.

However, in February, 1957 he developed an obsessional "fear", that he might . . . strangle babies met in prams. "Soon, whenever I closed my eyes, I always could see myself bending over prams and squeezing the babies' necks" (obsessional visual images). "I also had these 'visions' at night, with my eyes opened or closed" (hypnagogic images). "I had them in my dreams, and also in the morning, just after I woke up, but before I opened my eyes" (dreams and hypnopompic images).

After another course of treatment these obsessional "visions" disappeared, but in June, 1958 they became replaced by his old "phobias" of contaminating his family with cyanide. Soon this "fear" completely incapacitated him, and the patient stayed at home to prevent any possibility of getting in contact with cyanide. But staying at home did not dispel his obsessional fears. Moreover, he again developed visual experiences, of almost a hallucinatory intensity, in which he "saw" himself "getting up and rushing to a dumping place near the old factory, where before the war they used to dump the waste materials from the factory. I can see myself going there, soiling my hands in the refuse, and then coming back home and dropping innocently in the chair, as if nothing had happened. After a while I would see myself slipping out to the kitchen or to the pantry, and tampering with food".

*Case 4.* Mr. "D", a single man of 23, a maintenance engineer, treated here in December, 1958, was an immature, "shy", embarrassed individual, complaining of seeing, almost continually, a . . . mouse: "He is life-sized, has a brownish-grey colour, and shrewd little laughing eyes, and he is with me all the time. I know that he is only my 'imagination', but he looks so real that sometimes I can't help bending down and trying to catch him. Then he at once disappears." "Often I deliberately cross the busy streets, hoping that one day he might get run over by a car or bus. But before I reach the other side of the road, he is already there, as if waiting for me . . . I started seeing him over 7 years ago, just before my father died, or maybe just after his death. I'm not sure if that might have had anything to do with it."

"D" also had hypnagogic experiences, in which he saw either his mouse, or the cars, which attracted his attention during the day. All these objects always rushed at him, growing at the same time larger, and when they were just going to crush into him, he would shudder and either wake up with a start, or would fall asleep.

This monotonous, "*monosymptomatic*" visual obsession of "D" resembles a case reported by Skottowe, where "A professional man complained that he could not get the idea of a certain signature, (not his own, nor that of anyone he knew) out of his mind; he would see this signature, as it were, overprinted on any documents that were before him; it would obtrude itself into his mind when he was addressing an audience in the course of his work; he would lie awake at night thinking about it."

### 7. Visual Hallucinations

Drever defines a hallucination as "an experience having the character of sense perception, but without relevant or adequate sensory stimulation . . . usually thought of as restricted to abnormal or pathological mental conditions".

The *criterion of "sanity"*, used for dividing these complex visual phenomena into two distinct groups, one occurring in "normal", and the other occurring in "abnormal" subjects, is entirely an arbitrary one. It is more a legal than a strictly medical concept, and it rather confuses the issue instead of clarifying it. Moreover, many contemporary writers (e.g. Dewhurst, 11; Dawson, 10; Smythies, 64) express the opinion that "ordinary" visual hallucinations occasionally occur in mentally entirely "normal" individuals, and Blackburn (6), after stating that "Hallucinations occur more frequently when a person is very tired than when he is fresh", gives the following examples of such "hallucinations" in normal people: "A person . . . who spends a whole day typing may get a visual and kinaesthetic hallucination of typing afterwards. Or, after spending a day in a boat on the river, he may continue to feel the rocking movements. Or, after spending a day at Niagara Falls, he may continue to hear the sound of the falling water when he is in bed that night 50 miles away". (N.B. one may argue that the above after-sensations are, in fact,

extremely prolonged after images, or memory images, and not hallucinations in the strict sense of the word, as almost certainly each individual in the given examples would have been probably completely aware of the unreality of his experiences, i.e. would have shown a good "insight" into the unreal character of his sensations.)

Yet, also the more medical *criterion of "insight"* can be no longer regarded as "watertight". For instance, Smythies expressed the view that even the lack of insight is not necessarily a proof of a psychotic condition, and Bamberger (3) described cases of eidetic imagery, where there existed an actual confusion between the eidetic images and the real objects. Yet this fact did not preclude him from regarding these visual phenomena still as eidetic images and not as hallucinations. Allport, discussing the sensory vividness and intensity of eidetic images in a child, points out that: "It is sometimes only with difficulty that he is persuaded to distrust the reality of these vivid images." The same occurs in the imaginary companions of children, where the fantasied visual images, although quite deliberately created, possess a hallucinatory vividness (e.g. the little boy quoted by Hicks, 26).

Thus the lack of "insight" by itself is not a proof that a given visual experience is necessarily a hallucination, or that the subject experiencing it is mentally "abnormal". However, it is fair to say that in para-hallucinatory phenomena of "normal" subjects the insight into their unreality is almost always retained, whilst in the common hallucinations of psychotic patients there usually is no insight, and the hallucinated objects are regarded as real.

The visual hallucinations are fleeting and shortlived, and their duration usually corresponds to the time which would be required if their action, or contents, were to take place in real life.

It may be interesting to compare certain visual hallucinations of one of our schizophrenic patients with some visual experiences of our non-psychotic subjects. His hallucinations show many features similar to obsessional eidetic images in the neurotic patients. Here he is:

*Case 5.* Mr. "E", a single man of 38, a painter and decorator, suffered from chronic schizophrenia with auditory and visual hallucinations. Among the latter, one was of a particular interest: for eleven years "E" had "seen" a uniformed policeman, grinning at him, making faces, and often behaving in a provocative manner. (It would be difficult not to notice the resemblance between this grinning policeman and the grinning foreman of our non-psychotic patient, Mr. "F".)

Although the "policeman" often used quite unparliamentary expressions, he took the greatest care not to speak them aloud: instead the offensive words jumped out of his moving mouth in form of typewritten or printed paragraphs, like the ones seen in "comics" for children. This behaviour of the "damned copper" would so upset the patient that he "often had to shout at him, to make him stop it". (Similarly the non-psychotic patient "F" occasionally would shout at his "visualized" foreman.) It was quite easy for "E" to "outshout" his silent opponent, and then "the copper" would smile apologetically, and would "say" in his usual way (i.e. by means of the printed words rolling out of his mouth): "That will do for now. I'm sorry, old chap. Let's be friends again."

However soon he would start it all over once more: he would appear on the wall and would begin his usual "silent conversation". But now he would keep his mouth shut, and the printed words would appear under his feet, like the text in the old silent films. The language he used in these printed communications was most discourteous, to say the least. "E" reported: "At first I would try not to look at the wall, although I saw in my mind that he was there, and heard in my head his silly talking." (Similarly the non-psychotic Mr. "B" "saw" in his mind his "double" and "heard" in his mind the "double" talking to him.) "This bastard would not stop playing his dirty tricks on me, trying hard to make me look at him; but I wouldn't do it." However after a while a growing inner tension would become almost unbearable, forcing the patient to turn around, and to face the annoying vision. Then, the whole story would begin all over again: "E" would jump at his tormentor, shouting and threatening, and thus would "frighten" him away. Yet, in spite of all this "persecution",

“E” maintained quite cordial relations with his “copper”: “We are good pals, and, in fact, quite fond of each other. It is a fact, that he is often rude to me, but I guess he just can’t help it”, philosophically concluded Mr. “E”.

These visual hallucinations showed the following features peculiar to *eidetic images*: (1) they appeared mostly on the grey background of a wall; likewise, the eidetic images “are best seen on a dark grey background” (Jaensch, 29); (2) the patient “saw” his “copper” not only in all natural colours, but these colours always appeared to him to be “very bright and rather exaggerated”; in eidetic images, according to Jaensch, “the colours are more pronounced, ‘brighter’, or more ‘glowing’, than those of the test-objects”; (3) lastly, “E”’s visual hallucinations showed a remarkable stereotypy, and almost an obsessional monotony, closely resembling the mono-symptomatic “after-image-like” eidetic images of our neurotic patients “D” and “F”.

On the other hand, “E”’s hallucinations show a resemblance to some *hypnagogic images*. E.g. he “saw” the printed words coming out of the mouth of his “policeman”; our neurotic patient “H” could also “see”, and even read, the printed pages in his hypnagogic visions. Also one of the correspondents of Leaning (a Mr. H.F.S. cf. 43) was subject to similar experience: “I have a hypnagogic vision of a printed book which I try to read. I never succeeded in getting more than about half a line, and it is always the same sort of nonsense” (cf. 43).

There also exists some likeness of these peculiar pseudo-synaesthetic visual hallucinations of “E” to the hypnopompic images experienced by another of Leaning’s correspondents, Mrs. A.W., who “often saw on waking suddenly the strange symbolic figures, with explanations of their meaning on scrolls or shields” (cf. 42, p. 356).

#### 8. *Thinking in Visual Images*

This has already been described and discussed in the preceding paragraph, and here only a few additional remarks will be made. It has been assumed that there are two basic types of thinking, the one done mostly in visual images, and met in “visualizers”, and the other, predominantly performed in a verbal form, peculiar to “verbalizers”.

Pear (55) calls an individual with visual thinking a “*visile*”, employing “this and the homologous terms *audile* and *motile* to designate people whose predominant concrete imagery used in reality thinking is supplied by sight, sound and kinaesthesia respectively. The person whose thinking is chiefly done with words will be called a *verbalizer*”.

Thinking in visual images normally takes place in children, where: “The young child delights in conjuring up his images”, and where frequently he deliberately creates vivid visual images, “for example, to accompany a story which is being told” (Allport, 1).

Although this type of thinking usually retreats after adolescence and tends to be replaced by the more mature verbal thinking, some rudiments of visual thinking, in the form of vivid “visualizations”, are met among people who have to “visualize” their thoughts and ideas, before they can be produced or performed (e.g. the painters, sculptors, poets, script-writers, choreographers, film- and show-producers, etc.). However normally in none of these professions is visual thinking the exclusive type of thinking. It is rather a useful supplement to their “normal” verbal thinking. Here is an *example* of such visual thinking in an adult:



Case 6. Mr. "F", aged 49, divorced, a mechanic and fitter, was a definite "visualizer", whose thinking was normally done in terms of vivid and colourful visual images. He was so used to this peculiar quality of his thinking that in normal circumstances he was entirely unaware of it. He reported it thus: "I always see in pictures, whatever comes into my mind: when I think of an animal, I really see this animal, right in front of me; when I think of a man, I indeed perceive him with my very eyes. I know it sounds silly, but there you are. I just can't help it."

In contrast to ordinary visual hallucinations, the visual thinking of Mr. "F" was performed by means of freely-changing, wilfully directed and deliberately created visual images, which took place undisturbedly in the presence of other people. For instance, during an interview in my office, whilst looking at the stone-grey wall behind my desk, the patient could describe, very vividly, the scene of arrival of Queen Elizabeth, the Queen Mother, in Melbourne (it was at the time of her actual visit to Australia and New Zealand in winter 1958). He "saw" the Queen alighting from a launch and stepping ashore; he did "see" huge crowds on the quay, and a little girl, stepping forward, curtsying and presenting the Queen with a bunch of beautiful colourful flowers. "F" described this scene in an unperturbed, calm and matter-of-fact, manner. In a similar way he reported many other scenes which he incessantly "saw", i.e. of which he thought in his usual pictorial way.

There hardly can be any doubt at all that these visual experiences were, in fact, his *thoughts*, taking place in the form of visual images, projected into the external perceptual space, and then literally "seen" by him, with a sensory vividness and a perceptual intensity. Yet, a strict line of demarcation between this visual thinking and eidetic imagery, on the one hand, and visual hallucinations, on the other hand, may often seem to be only an arbitrary one.

As has already been mentioned, in everyday life "F" was unaware of his peculiar thinking. Only, when some of his visual images would gain an exaggerated "autonomy", and manifest an unduly prolonged duration, or an obsessional persistence, would he become conscious of their annoying existence, as occurred in February, 1958, when "F" for many weeks almost continually "saw" a life-sized image of his foreman, holding a cup of tea in his hand, and cheerfully grinning at him. (*obsessional eidetic images* of Jaensch's "after-image-like eidetic images" type.) At night, when the patient lay sleepless in bed, with his eyes wide opened, this image would again stand in front of him, so vivid and so real, "that I would sometimes forget that 'he' was only my imagination, and would shout at him: 'Get out of here, and leave me in peace. You have no right to come here'" (*hypnagogic imagery*). "F" has always been subject to a vivid hypnagogic imagery, and as a child he often had vivid "flying" dreams, which recurred at intervals, up into his adolescence.

This man was also given to other visual experiences, with an emotionally completely indifferent, or accidental, content: "Whatever I happen to see, however trivial, or nonsensical, will continue to persist in front of my eyes for hours, and I can't get rid of it". These unduly prolonged *after images* and *primary memory images* were most vivid in his childhood, causing him difficulties with learning, because he saw, *instead* of the printed lines, very clear and vivid images of people and scenes he had just seen and met in real life. (In this respect he resembles the boy reported by Jaensch, who could learn only in the early morning, otherwise he would see various scenes he saw during the day in the form of very small pictures *between* the printed lines.) When "F" grew up, these phenomena became much less pronounced and less obtrusive, although from time to time, without any apparent reason, they would become most



persistent and annoying again. They were spontaneous and independent of his will, and the more he tried to change their contents or altogether to get rid of them, the more obstinately they would stay in front of his eyes.

(b) HYPNOTIC AND PARA-HYPNOTIC VISUAL PHENOMENA

Various visual experiences belonging to this group occur in conditions connected with sleep. They are induced by restricted sensory perception, leading to drowsiness, and to an increasing breakaway from reality. Here are some of them, ordered according to their progressive complexity:

1. *Visual Phenomena on Brief Closing of the Eyes*

After the two phases of an after image die away, the visual field becomes filled with primitive, formless, unstable images, such as spots of light, blots, patches, flashes, threads, clouds of light, etc. Later there may appear some more highly organized formations, mostly various simple but symmetrical patterns, often a hexagonal or octagonal network, formed by bright or dark lines, coming together and then separating, and thus creating all the time some new angular or circular formations.

These “*entoptic*” images seem to be universal, and, like the after images, entirely physiological. Aetiologically they are related to both the after images, and the rudimentary eidetic images. They probably are inherent to the ceaseless activity of the optic nerve and the visual centres, possibly on the principle of a reverberating feed-back system. They appear very soon after closing of the eyes, and are not accompanied by the drowsiness so characteristic for different varieties of hypnotic imagery (e.g. for hypnagogic images).

The hexagonal “honeycomb” design seems to be particularly common, and it was reported (e.g. by Purkinje; by König, cf. 38) as mostly occurring in the hypnopompic imagery. Klüver (38) assumes that certain geometrical forms and designs constitute “*form constants*”, which are found in different visual phenomena, e.g. “in mescaline hallucinations, in hypnagogic hallucinations, in entoptic phenomena, in the visual phenomena of insulin hypoglycaemia”, and “occasionally . . . in fever deliriums” (38).

In some cases the visual field may become filled with more highly organized images, e.g. with architectural designs, or even with animal or human forms. On the whole, however, these more complex images are rather characteristic of a more prolonged sensory isolation. Here is an *example* of the latter:

*Case 7.* Mr. “G”, 57, married, a retired high-ranking Army Officer, for the last two months preceding his admission in December, 1958, complained of the following visual experiences: “Whenever I close my eyes, I can ‘see’ the faces of my friends, right in front of me, about 3 or 4 feet away. They show a photographic likeness, and natural colours, but they appear in a sort of a circle, or an elliptical frame. Their facial expression changes, depending on the conversation. When they talk, their lips move. I can hear them, somewhere within my head, and I answer them, though in my thoughts only. Yet, they say that they can hear me quite well. Sometimes they hold nonsensical conversations, such as: ‘Now, I will lift my right arm’, or ‘I will scratch my left ear’, etc. At the same time they go through the announced movements or actions.” Sometimes Mr. “G” could “see” these “visions” also with his eyes opened, in full daylight, but only when he was looking at a dark or grey background (eidetic images). He retained a full “insight”, and regarded these experiences as his visual “imagination”. Although rather rudimentary, these visualizations, up to a certain degree, resemble the imaginary companions met occasionally also in adults.

The primitive shapeless images, as well as the more highly formed, perceived on closing the eyes are, as a rule, *involuntary*. An example of such obtrusive involuntary visual images was also Maury, who “could not close his

eyes even for an inappreciable second during reading aloud without having a vision" (Leaning, 42). However, in some cases such images may also be produced *voluntarily*, as was the case with Mr. "G".

## 2. *Visual Images in Prolonged Sensory Deprivation*

Grünthal (22) has described very interesting visual phenomena brought about by a prolonged closing of both eyes, i.e. by a partial temporary perceptual deprivation. They assumed three different forms: (1) *Photographic-like images* of faces, scenes, printed pages, etc., all familiar and well known to the observer; (2) *artistically styled images*, mostly of architectural nature, and (3) *images of animals*, formed of the initial "clouds of light". These visions, which occupied the whole visual field, manifested a complete "autonomy", and could not be produced by a hopeful expectation, or by a voluntary effort. In Grünthal's view, their content was on each occasion predetermined by the actual interest of the observer at the time of their occurrence.

Similar visual phenomena were reported by fourteen students, voluntarily subjected to an experimental perceptual isolation, involving a complete temporary multisensorial deprivation (in Grünthal's case only the eyes were closed, on the first occasion for 8 days, on the second for 3 days). These experiments were conducted by Goldberger and Holt (21), who found that the visual images experienced by their subjects "were unusual in their sudden, spontaneous appearance, their vividness, and in some instances, their 'meaningless' content". Of the 14 subjects of this experiment only 7 experienced visual images; of them 2 saw complex scenes; 2 "inanimate objects"; 1 saw architectural objects; 1 flowers; and 1 a "prehistoric animal".

In this connection it is interesting to notice that similar visual experiences, occurring after an intramuscular injection of D.M.T. (cf. Sai-Halász, Brunecker and Szára, 61), become more intensive and "assume a scene-like character", when the subject of the experiment closes his eyes.

Goldberger and Holt regarded most of these images as hypnagogic in character, and postulated that "perceptual isolation primarily tends to increase the vividness (intensity) and structure of imagery", but when unduly prolonged, it tends to weaken the ego and its ability of reality-testing, thus paving the way for possible hallucinations. In other words the censorial function of a threatened or weakened ego becomes less effective, and thus allows the archaic images to emerge from the dark underground caves of the racial unconscious. A dramatic *example* of it may be found in the romantic poem of Goethe ("Der Erlkönig") about a little boy, riding with his father late at night through a wood, and populating it with archetypal images of the "King of the Woods and his Fairy Daughters". These, apparently mythological, images were precipitated from the child's racial unconscious by his actual fear of darkness, and a threat to his ego by a temporary partial sensory deprivation (darkness).

*Case 8.* Mr. "H", 47, married, an aero-engine fitter, who "always was on the worrying side", attended, prior to his admission, a comprehensive course on jet-engines (hitherto he worked with piston-engines only). Almost immediately after this course ended, he joined another, more advanced, course for prospective foremen at B.A.C. (Bristol Aeroplane Corporation, the makers of the "Britannias"). During both these courses, "H" had to read some technical books, and, "As I always was more clever with my hands, than with my head I soon began to worry that I will fail in my exams" (*obsessional fears*). "Towards the end of the second course, just before the beginning of the written examinations, I could not close my eyes without seeing whole pages of my books. They were so clear and vivid that *I always could read a few lines*, before the rest of them would get misty and blurred, and finally disappear" (persistent *memory images* with closed eyes). "My nerves were all the time getting worse, and I soon began to see the typed pages of my textbooks also with my eyes

opened, particularly when I was looking at any dark background" (*eidetic images*). "I would see the same, when I was lying in bed, just before I would go off" (*hypnagogic images*). "It always was an extremely frustrating experience, because I could read only a few lines at a time before the whole picture would become blurred and would disappear".

This case is another example illustrating the growth and "spreading" of the emotionally-charged idea (the "fear" that the patient might fail in his examinations), assuming visual forms, and being expressed in various para-hallucinatory phenomena. All these experiences quickly disappeared after a short treatment in October, 1958 (and the patient passed his examinations).

Most of the visual phenomena experienced on prolonged sensory isolation are related to eidetic imagery and to a certain type of memory images, which may either re-appear with a photographic accuracy of after images (e.g. the typed pages of a book in the case of Mr. "H"; some architectural images, well known to the observer in Grünthal's description), or may be freely "re-styled" and unconsciously re-built by the creative fantasy of the "viewer". In the latter case they rightly may be regarded as one of the varieties of visual thinking, a para-hypnotic correspondent to the wakeful day-dreams. The duration of these experiences is conditioned by the duration of the precipitating sensory deprivation (apart from certain obsessional cases, as happened with Mr. "H").

### 3. *Hypnagogic Images*

They have been defined as: "Imagery of any sense mode, of a strongly autonomous kind and sometimes of almost hallucinatory vividness occurring in the drowsy state prior to sleep" (Warren, 73). They "are experienced more often with closed than with opened eyes", and "are more often coloured than not" (Ardis and McKellar, 2). They usually consist of kaleidoscopic quickly moving, changing, vivid and colourful, images. According to Leaning ". . . no picture can be 'held' indefinitely, and as a rule no picture ever appears twice". This last statement seems to have no application to the hypnagogic images with an underlying obsessional character, as, e.g. our case "D", and Mrs. Leaning's own correspondent, Mr. H.F.S. prove.

Hypnagogic images may be either an isolated experience, occurring once in a lifetime, or they may be a kind of a repetitive "overture", or an introduction to each act of falling asleep on each night of the year. These images usually last only a few seconds, although sometimes their duration may be considerably prolonged. Their *content* is extremely varied, and, apart from human faces and whole persons, often consists of scenes, which are "highly coloured, brilliantly lighted, very distinct, miniature in size, and contain numerous details" (Leaning, 42).

Although, on the whole, they possess a considerable "autonomy", sometimes a subject may train himself to produce hypnagogic visions *deliberately*. For instance, one of Leaning's correspondents (Mr. E.S.T.) claimed: "At times just before sleep I could conjure up the visual perception of anything I liked; e.g. faces of friends with most amusing distinctness and naturalness of detail" (cf. 43). There is a good reason to assume that our patient "G" also "trained himself" to "conjure up" some hypnagogic images, in which he has often "seen" whole "female figures, either naked, or just taking their clothes off, and inviting me to have sexual intercourse with them". They were always the images of women he knew intimately in the past. (N.B. for the last four years "G" lived in a "bed-sitter", away from his family, and only once, in all this

time, had a normal coitus. Thus, the wishfulfilling nature of his hypnagogic imagery is quite obvious.)

There are various views on the *aetiology* of hypnagogic imagery. Leaning herself regards them as a variety of memory images ("subconsciously memorized"). A confirmation of this is to be found in this statement of another of her correspondents (Miss M.C.): ". . . after cycling I see the hedgerows slipping past on either side, while I seem to be darting like a swallow down and up without effort". (N.B. the memory-image-like "hallucinations" of auditory and kinaesthetic nature, described by Blackburn, seem to fit this category of hypnagogic imagery admirably.) Ellis (14) offers this, *physiological*, explanation of hypnagogic imagery: "The eye supplies entoptic glimmerings, and the brain, acting on the suggestions thus received, supplies mental pictures to those glimmerings".

#### 4. *Hypnopompic Images*

These phenomena occur in the drowsy state between the end of sleep and waking up, just before the subject returns to full wakefulness. Like the hypnagogic images, they show a considerable "autonomy", and independence of the subject's conscious "will". Although it is assumed that many children are able to produce deliberately and to control their hypnopompic visions, the ability to do so usually recedes in adolescence, and only very few adults can still conjure up and dismiss their hypnopompic images at will.

McKellar and Simpson (49) define them as "a perseveration of dream imagery into the waking-up process". Most often the hypnopompic images are "seen" with the eyes still closed, but not infrequently with the eyes already opened, particularly when the subject wakes up at night and opens his eyes. In most cases hypnopompic images are of *visual* character, although other sense modalities may also be involved. For instance, a girl reported by Ellis experienced *tactile* hypnopompic sensations. Also one of our own patients (cf. 46) was on three occasions subject to hypnopompic haptic pseudo-perceptions. Sometimes these experiences have an "anticipatory" character (e.g. of a ringing alarm-clock, before it really starts to ring).

Hypnopompic imagery is a much more common phenomenon than is generally assumed. For example, among the 182 students of the Aberdeen University, investigated by McKellar (48), over 20 per cent. experienced, at one time or another, hypnopompic images. Hypnopompic images are fleeting and of very brief duration. They are "autonomous", and any attempt at interfering with their contents or their duration in adults, usually results in the individual's complete waking up, and the instantaneous disappearance of the image. Here is a brief *example* of hypnopompic visual imagery: When the wife of one of our patients opened her eyes, one early morning, she "saw" her husband sitting on the edge of the bed, with his head in his hands; however after a few seconds, when more widely awake, she satisfied herself that "he was sound asleep by my side" (cf. 46).

#### 5. *Dreams*

In this paper dreams will be discussed only in connection with their belonging to our second (hypnotic) group of visual para-hallucinatory phenomena.

Dreams show many features in common with other forms of visual imagery. Here are some of them: (a) The *contents* of dreams are produced and conditioned by subconscious desires or fears of the dreamer; (N.B. in some

primitive cultures, as e.g. among Temiar, the Malayan aborigines, the children are taught by their parents and other adults, how to dream, what to dream and how to react to their dream images; cf. Holman, 27; Stewart, 65). (b) The *thinking* employed in dreams represents a typical "A"-thinking, i.e. wish-directed and depending not upon logical connections of thought, but upon "free", emotionally directed, or accidental association of ideas and images. Hence dreams are usually illogical, irrational and perplexing. Some dreams quite evidently contain elements of archaic images (e.g. the typical dreams of Temiar, 27, 65), and as far as their detachment from reality, their phantastic bizarrerie, and the lack of insight, is concerned, dreams resemble short-lasting, reversible, psychoses. Brain (8) expresses it even more drastically: "We are all temporarily insane during sleep, and our waking moments are but lucid intervals". (c) As in other para-hallucinatory phenomena, the action taking place in dreams, and the persons perceived in them, are always located *in the external visual space*. "We imagine, remember, and dream mainly in terms of our exteroceptive, spatializing senses; and our dreams are projected into an external world" (Brain, 8). (d) There is an, apparently complete, "*autonomy*" of the subjects seen in dreams, particularly in dreams of "persecutory" nature. Although created by the dreamer, they behave entirely independently of his efforts to direct their actions and words. Brain explains this extreme *externalization* by "a splitting of consciousness in which the individual becomes divided into multiple personalities, but just as in waking life there is only one 'me' and all other persons and things are external, so in dreams only one personality is linked with the physiological basis of the self. The rest are externalized".

It was often assumed that the *duration* of dreams is a considerable one, and that sometimes they may last even for hours. However the recent, controlled experiments, conducted under strict supervision, in laboratory conditions, with the help of EEG, etc., proved that an average dream lasts mostly only a few minutes, and very often much less than that (cf. Barratt, 4; Drever, 13; Goldberger, 20; Kleitman and Aserinsky, 34; Kleitman and Dement, 35; Kleitman and Engelman, 36; Walter and Yeager, 72; Wolpert and Trosman, 75, etc.). There are usually two peak periods with maximum of dreaming during each night's sleep.

Dreams are usually *colourless*, i.e. they are experienced in black and white, respectively in different shades of grey, although dreaming *in colour* is not very infrequent. Thus, de Martino (50) reported 17 per cent. of colour-dreamers among his southern college students, and Husband (28) 40 per cent. Both these writers met colour-dreaming three times more frequently among females than among males. Tapia, Werboff and Winokur (67) found "more neurotics to report dreams in colour". This fact was thought to be "mainly due to the female neurotic" in their group.

Here is an *example of a dream of memory image type*. It is based on some real facts and actual events, but at the same time it shows also a *distortion* and *condensation*, so characteristic for all dreams:

*Case 9.* Mr. "I", a chronic schizophrenic, a single man of 27, spent most of the last 9 years either in Barrow or in Fishponds (both together constitute "Bristol Mental Hospitals"). Whilst in Barrow, he was on two occasions under my care, but during the last 5 years he had been permanently an in-patient at Fishponds Hospital. Recently I received this letter from him:

"Sir, I attended a divine service at the picture hall last night in which a powerful arc light was shining on the left side of the hall. I was wondering if looking up at this light caused me to dream the following dream about yourself. I dreamt I had an interview with you at the Bristol Royal Infirmary. I dreamt you took me into a small room and connected a system of scientific apparatus over my head and ears and placed an oblong piece of rubber between



my teeth. Then I had an X-ray photograph taken of my brain. And I felt like a lot of powerful electrical waves passing through my brain." (Here follows one of the illustrating drawings: the patient's head with an electrode on it, connected by two wires with a transformer, and numerous curly "electrical waves" radiating from the top of his head.) "Then the dream completely faded away and I came back awoken to reality."

This dream represents a *condensed re-living* of three emotionally charged real events: (1) having had an interview; (2) undergoing an EEG recording; and (3) being given an E.C.T. Neither of the last two procedures is performed personally by me, and the patient must have been aware of it. Nevertheless in his dream he identified in me not only the physician examining him, but also the other two doctors, administering EEG and E.C.T. to him. Thus, in a typical way, he "condensed" in me three different persons, as he "condensed" in one scene three different events: one of being examined, one of having EEG, and one of having E.C.T. Such condensation is a negative phenomenon, opposite to a "reduplication" of person and of body parts, mentioned in preceding paragraphs.

Among the features particularly characteristic for dreams is the frequent appearance of *symbols*. This fact has been known for ages, and has resulted in attempts at explaining the dream by deciphering its symbols, i.e. its concealed meaning. Many *examples* of symbolic dreams and their interpretation are contained in the Old Testament (e.g. the dream of Pharaoh about the 7 fat and 7 lean calves). In classical *Greece and Rome* great importance was attached to the interpretation of dreams, and it was believed that it was possible to forecast the future from dreams. (Even today in some primitive cultures the dream still possesses a unique social importance, and, e.g. among the *Temiar* no important decision will be taken by the group "without one of its members having had a dream that prescribes a certain course of action", and "Most Temiar inspiration comes from their dreams" (Holman, 27). In the superstitious *Dark Middle Ages*, obsessed with religious questions, "witchcraft", dreams, particularly with an erotic content, were inevitably regarded as "temptations of the Evil One". In spite of this, the dreamer was held responsible, and was even punished for his dreams. In the over-rational *XIXth Century* dreams were viewed as the result of an uncontrolled play of the fantasy, not deserving any serious consideration or study.

Only the beginning of the *XXth Century* brought a more rational, more objective, and less prejudiced approach to the investigation of dreams. Freud (17) was the first to study them and to point out many features, common to dreams, folklore and mythology. Unfortunately, Freud's interpretation of dreams' symbols brought a lot of bitter and exaggerated criticism, overlooking and underestimating his valuable contribution to a better understanding not only of symbols involved in dreams, but also of the psychological forces behind the dreams, of their function, their meaning, etc.

There are many physiological, philosophical and psychological *theories* explaining the dreams, but only the following three need be mentioned here: (1) *Freud's* theory, interpreting dreams mostly as a wishfulfilment; (2) *Jung's* interpretation, regarding dreams as the manifestation of the archetypal thinking, and an expression of personal and of racial unconscious; and (3) the "biological" theory of dreams of Hadfield (24).

##### 5. COMMENT

Various visual para-hallucinatory experiences show certain *common features*, as far as their localization, richness in detail, persistence, intensity,

“autonomy”, conditions of arousal and disappearance, etc., is concerned. However only one or two of these characteristics can be here further elucidated. Many visual phenomena are perceived in intense *colours*, described by the subjects as “gorgeous, most vivid, exquisite, fantastic”, etc. They seem to be *brilliantly lit*, in particular the hypnagogic, and to a lesser degree also the eidetic images. (2) Most of them are “seen” in a *distance* corresponding to the one found in real life, although they appear to retain this distance constantly with regard to the subject, irrespective of his possible movements (cf. the image of the elusive foreman of Mr. “F”). Hence the subject can never succeed in “catching” his vision (e.g. Mr. “D”). (3) Almost all of these visual experiences possess a characteristic “*autonomy*”, i.e. an apparently complete independence from the subject’s “will”, or conscious effort. However, there are some *exceptions*. For example, our patient “G” could at any time “conjure up” the faces of his friends, and Leaning mentions that Meyer trained himself to “see” at will almost any image he wished in “natural colours and illumination”. Allport reported that some of his “eidetics” were able “by an effort of attention, to cause movement within the image. Thus a carriage was made to drive away, turn a corner in the road, and so to disappear entirely from the image. People could be made to enter and leave, and to perform normal actions”. It seems probable that many *children* can control their eidetic and hypnagogic images, creating and dismissing them at will, However, in most cases this faculty disappears at the time of puberty.

The *content* of para-hallucinatory visual experiences may be most varied, and seems to depend in each case on the subject’s particular *interests* (cf. the visual phenomena “seen” with closed eyes described by Grünthal), his *fears* (e.g. the “visions” of our Mr. “C”), or unconscious *desires* (e.g. the frankly wishfulfilling hypnagogic imagery of Mr. “G”). In contrast to real hallucinations, and because of its compensatory or wishfulfilling nature, the content of para-hallucinatory experiences is only rarely disagreeable, hostile or frightening. In the main it is either indifferent, or pleasant, in particular in day-dreams, where the compensatory and wishfulfilling mechanism is often very obvious.

The *emotional reaction* to various visual experiences varies according to their nature and contents: (1) Some patients quite frankly “enjoy” their “visions”, particularly those of hypnagogic and hypnopompic nature, and sometimes “train” themselves (e.g. Meyer; our patient “G”) to “conjure up” various desired images (cf. also the imaginary companions of children and socially isolated adults). (2) Other subjects retain an unperturbed, or a detached attitude of an interested but passive spectator. (3) Only a few become apprehensive or emotionally disturbed by the contents of their, usually threatening, visual “imagination” (e.g. Mr. “C”). All this presents a striking contrast to the frequently hostile or offensive behaviour of the hallucinated objects in psychotics, resulting in an aggressive behaviour, and sometimes violent reactions, on the part of the hallucinating patients. (It is instructive to compare the provocative behaviour of the “copper” of Mr. “E” with the smiling and benign appearance of the foreman of Mr. “F”).

There obviously are no rules as far as the *frequency* of “seeing visions” is concerned. In hypnagogic images it “varies . . . from a single occurrence in a lifetime up to the habitual seeing by day, whenever the eyes are closed, and by night with the eyes open or shut” (Leaning, 42). The same, by and large, is applicable to almost all other visual experiences. For example, Mr. “G” could “see” the faces of his friends whenever he closed his eyes; Mr. “D”

“saw” his “mouse” almost continually for seven years; Mr. “F” “saw” his foreman only periodically.

In contrast to “ordinary” visual hallucinations of psychotic patients, in all visual para-hallucinatory experiences the subjects retain, as a rule, a full “*insight*” into the unreal character of their experiences. A few known exceptions (cf. Bamberger, 3) rather confirm the rule, and do not invalidate it.

There can be no uniform or specific *treatment* for such different and diverse phenomena. Speaking generally, any therapeutic effort should, in the first instance, aim at the accompanying syndrome, the underlying condition, if there is one evident. It seems that, as in schizophrenia, whatever one does to the patient exhibiting any para-hallucinatory phenomena, as long as something at all is being done to him, it has a therapeutic affect. It is even possible that the common denominator responsible for the improvement is, in fact, the personality of the therapist, and not the kind of treatment he applies. Habitual visual thinking is an exception in this respect: no “treatment” seems to influence it. This is hardly surprising, as the visual thinking is probably a constitutional peculiarity, thus being not amenable to any therapeutic endeavour.

#### 6. CONCLUSIONS

1. “Thinking” in clear and vivid visual images, resembling silent films, seems to be normal in children and pre-literate human groups.

2. It probably persists, in a rudimentary form, in many artistic and creative adults even in our type of culture, though its complete survival in adults seems to be not only extremely rare, but frankly abnormal. However, in some rare cases it may represent the usual form of conscious, reality-testing, thinking, and may harmlessly “co-exist” with the common, verbal type of thinking. Usually the individual concerned remains entirely unaware of its existence.

3. Two aetiological hypotheses have been advanced: (1) visual thinking is a “fixation” at, a “regression” to, a less mature, pre-verbal type of thinking (a psychodynamical interpretation); and (2) visual thinking represents an individual peculiarity, which may be, up to a certain degree, constitutionally predetermined (a genetic interpretation).

4. This type of thinking seems to be related on the one hand to such para-hallucinatory visual experiences as eidetic imagery, day-dreaming, hypnagogic imagery, dreams, etc., on the other hand to the “ordinary” visual hallucinations.

5. A similar, but thematically usually very restricted, condition may sometimes occur in some cases of obsessional states. In such cases some mild obsessional traits may be traced out in the “pre-morbid” personality of the subjects concerned.

6. The treatment of these phenomena should be directed at the underlying, or accompanying, psychological disorder.

#### 7. SUMMARY

The existence of an uncommon, in adults of our culture, type of thinking in terms of vivid visual images, i.e. of “*visual thinking*” was postulated. It was thought to be related to autistic thinking, to archetypal images, and to some similar phenomena, belonging to the vast group of “waking fantasies”. The

phenomenology of "visual thinking" and of some other para-hallucinatory experiences was briefly sketched and illustrated by a few clinical cases. One of them clearly manifested a habitual way of thinking in visual images. On some occasions this would become obsessively perseverative, and then the patient would become aware of it. Some other illustrations (i.e. our cases "C" and "D") presented a typical picture of obsessional neurosis accompanied by a vivid obsessional visual imagery, precipitated by some emotionally over-valued, or traumatizing, ideas, or "fears". Certain aetiological hypotheses were put forward, and some suggestions regarding the possible treatment were made.

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