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THE DREAM STATE AND ITS PSYCHIC CORRELATIVES.

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At first sight the state of sleep might be regarded as a purely negative condition, and hence as having no place in a psychological discussion. But when one considers the dream state it is at once evident that this rounds out and completes an otherwise inadequate conception of the mental entity. We are certainly not non-existent during sleep, and hence we must feel that the mind is present, however profoundly in repose. We shall, therefore, consider the psychical bearings of sleep and the dream state with reference to our previous studies of normal mentality, and also in regard to their bearings on abnormal conditions of the mind.

In previous papers I have formulated my ideas as to conditions (not nature) of consciousness, and of sleep. I there regarded consciousness as present when the energy involved in the cerebral metamorphoses reaches a certain level of intensity, and sleep or unconsciousness as the obverse condition pertaining when the energy falls below this level of intensity. This cerebral energizing I have supposed to vary indefinitely between the maximum of intense thought and the minimum of profoundest sleep. The transition from the one extreme to the other is normally always more or less gradual. Evidently whether gradual or sudden it must touch upon all intermediate stages. A person engaged in profound thought cannot instantly fall asleep. His consciousness must come to represent a less and less intense degree of energizing. Finally a stage is reached in which volitional guidance is no longer present, and in which many

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associative vibrations are no longer conscious, the mind seeming to wander in a vague, visionary way. A slight further reduction and the ego fails to consciously register new impressions sent through the senses. Technically this is the criterion of sleep.

But the cerebral energizing is still sufficient to produce changes that may possibly register themselves sufficiently to be recalled. This is the dream state. Some persons sleep poorly, and seldom sink much below this state, and in some abnormal conditions this comes to be a permanent condition for days or weeks. But the strictly normal brain sinks to still lower levels of energizing, until its vibrations are so feeble that they will never be consciously recalled. This is the condition of profound abnormal sleep.

Manifestly the reverse transition—from profound sleep to active waking—must travel backward over the same path, also passing through a dream state. It is the vibrations of this latter dream state that are usually recalled, for the reason that they are still active at the moment of waking, while the vibrations of the other dream state have ordinarily then been for some hours subsiding. That the vibrations of what might be termed the descending dream state are seldom recalled does not seem strange when we reflect that even the morning dream usually vanishes forever from memory unless actively reenacted soon after awakening.

Thus much premised, we are prepared for a more specific consideration of dreams and dreaming. This discussion is important here because the psychical phenomena of dreams, subjectively considered, afford the best clue we can obtain to a certain class of delusions of the insane. During a vivid dream, the subject is as completely the victim of delusions as is the wildest maniac. The experiences of such a dream seem to flash along like a lightning streak of concentrated consciousness in a midnight sky of mental oblivion. Seldom can the most disciplined thinker attain during waking hours the degree of seeming unity of thought which comes in dreams to the most undisciplined and the most disciplined alike. The dream seems to be a single, direct line of thought—a train of thought of one dimension as it were; while every waking act of mind sweeps a wide, devious channel—at narrowest a channel of three dimensions.

But how is this consistent with the idea of the unity of mind?

Is this a different mind which operates during sleep, following different laws? Our belief in the somatic origin of mind banishes such a thought as that. Surely the brain and its fibres have not fundamentally changed during sleep; surely, then, the nature of its energizing cannot have changed. On the contrary, I believe that in dreams the mind follows precisely the same laws and lines of action as during waking hours. That the results seem different from those of the waking mind, as viewed in retrospect, is, in my opinion, because the reproduction is not accurate. There seem in the dream to be associations which the waking ego pronounces absurd or impossible, yet the dreaming ego accepted them unchallenged. The explanation of this seeming anomaly is this: The remembered dream results from the reproduction of the line of vibrations which was most intense during the period of dreaming. The associations of ideas are the same as during waking hours. But in the dream the constantly wavering minor vibrations—which carry the mind hither and thither, introducing new subjects and constantly shifting from the one in hand—are so feeble that they are not reproduced by the waking mind, and hence are altogether lost. That they occurred, no one who believes in the unity of mind can doubt; but waking consciousness cannot recall them. So in the recollection of the dream, the most grotesque changes and transformations occur with seemingly no connecting link. Thus a dream which started with a man for its subject may have the man transformed into a bird and the bird into a horse, while the ego feels no surprise at the transformation. The line of thought changed by natural gradations from man to bird and horse just as it might during waking hours, but the connecting links were so feeble that they did not arise into the subconsciousness of the dreamer; hence the record in memory is of a single object which, changing from man to bird and horse, still retained the original personality. The fact that even the most intense portions of the dream will soon be eliminated from memory unless vividly recalled and repeated soon after awakening, lends color to this theory; which, furthermore, is the only one I have been able to find that accords with our knowledge of mind and its action.

That the associative processes are so weak as they are here supposed to be is in part, no doubt, because the general blood

supply to the brain during sleep is very limited. Even the most intense line of vibrations (that which makes its record in the dream proper), is feeble in comparison to that which pertains during ordinary waking consciousness. True it may seem intense, but in proof of its actual weakness, witness the inefficiency of attempts to cry out, to strike, run, etc. Abnormal somnambulistic conditions, in which there is actual intensity in circumscribed areas of vibration, will be considered later.

In this view, it will be seen, the dream is not really a concentrated line of thought. It would be strange indeed if during sleeping hours the ego attained a greater degree of concentration of thought than it could attain while awake. But the view just advanced does away with this absurd supposition, and correlates the mental condition during sleep with the condition of the waking ego.

I have just spoken of the dream state as a perfectly normal condition of the organism. But I would not be understood as maintaining that a prolonged period of dreaming is necessary or desirable. I believe it to be impossible for the brain to pass from the condition of waking to that of sleep without passing through the field of the dream state. But its transition through this realm may be so rapid as scarcely to leave time for a record of cerebral action; and I believe that the most normal awakening is that in which the transition is so rapid that it is seldom appreciated by sub-consciousness sufficiently to be recalled. True it has been often demonstrated that dreams may take place in very short periods of time, but I believe that observation will convince anyone that it is not unusual for sleepers to experience dreams that extend over relatively long periods. And I believe further that it is the rule with persons who sleep poorly to dream during periods that occupy an appreciable ratio to the entire period of sleeping. Any one who will watch a restless sleeper will soon be convinced that the degree of mental reduction during sleep fluctuates greatly. Now the sleeper lies with every muscle relaxed; now he starts and turns uneasily; and now, his lips utter half articulate sounds. No one can doubt that the blood currents and the nervous currents are fluctuating in that sleeper's brain. And it is the natural inference (though not usually, if ever, susceptible of demonstration,) that such a

sleepers is, during the restless intervals, dreaming. But such a sleeper is not sleeping in the most normal way. His brain is receiving disturbing messages, perhaps from the digestive tract or from a cramped limb, and its currents are not equally distributed. The undisturbed brain in repose, though of course never absolutely free from afferent impulses, yet receives, we may suppose, none in such preponderance as to disturb its equability. And it seems natural to suppose that the most normal way of awakening would be that in which the blood suffuses the brain equably, accentuating the nervous currents so evenly that a general and vague sub-consciousness should precede waking, rather than the unbalanced consciousness which we know as a dream. This supposition finds the strongest possible warrant in the fact that for a moment after awakening from natural sleep the mind entertains only the most vague and indefinite concepts. It is usually impossible for any one to say what was his very first thought on awakening from a peaceful and "dreamless" sleep.

It will be seen, therefore, that while I regard the dream state as a strictly normal and indeed unavoidable condition of mind, I nevertheless regard a vivid dream as an abnormal mental phenomenon. In other words, I believe that the unavoidable dream state is normally so nearly a condition of equability of brain currents that the one preëminent current will be so slightly accentuated as to rise into consciousness only in the most vague and indefinite way, and not with such force as to be ever recalled by the waking ego. In this view the normal dream is the exact counterpart of that vague form of waking reverie which often precedes sleep, in which the mind is vaguely conscious of a sense of well being, and in which the ideas are so indefinite that the "day-dreamer" could not, if questioned, tell of what he was thinking. Indeed, he could scarcely be said to be thinking at all, since his thoughts are not susceptible of reproduction. And so—paradoxical as it seems—the normal dreamer can scarcely be said to dream at all, since his dream can never be reproduced. In the waking reverie, the aggregate brain currents are above the level at which consciousness appears; in the dream state they are below his level; in each case the particular current momentarily preëminent is but slightly above the level of its fellows. But however slight the

difference, it is difficult to believe that there can ever come a time in which the currents are absolutely equable, since we know nothing of absolute equality anywhere. Hence we must believe that, in the widest view, all sleep is a dream state. And this is a perfectly consistent and tenable belief. It is true that profound sleep is commonly, and under ordinary circumstances properly, spoken of as dreamless; but this merely means that it produces no mental state that can be recalled. Of the multitudes of vibrations that must be going on in the brain during the profoundest sleep, one set of vibrations must at any given moment be the most intense, and we have every warrant of analogy for supposing that a mental state accompanies this most intense vibration—a mental state that has received no name because it does not enter into experience, (except theoretically,) but which is the exact counterpart of the rememberable dream and of the conscious ego.

We have seen that the dream is strictly comparable to a train of thought of the waking ego, each being the psychic equivalent of a preëminent set of vibrations in the brain. Now it seems highly probable that the amount of energy represented by this set of vibrations is, in either case, very small as compared with the remaining aggregate of cerebral vibrations. In proof of this, witness the great number of more or less vague concepts that form a background to every definite concept of the waking ego. For example, we are always conscious of time, space, place, our own personality, etc. But in the dream this background is always very much restricted, and it is precisely this restriction which constitutes the essential difference between the dream state and the wakening condition. Suppose a person to awaken from a sleep in which he has experienced a vivid and frightful dream. He may at once recall the dream in all its details, but it is a very different thing indeed as thus recalled from what it was when first experienced; for it is correlated with a host of other experiences and made to take its true place in the mental organism. That this did not occur during sleep was because the tissues related to the ones that vibrated to produce the dream were relative, quiescent and non-receptive, only becoming, as it were, awakened when the vibrations underlying the dream became very intense. Had these associated tracts failed to become receptive when the dream became intense, the

organism would have passed into a condition of somnambulism. This is an abnormal state in which the cerebral currents are so ill-coördinated that one restricted set of vibrations is very intense while the average intensity of vibration does not rise to the level of consciousness. The same thing occurs during certain other abnormal states, such as hypnotism, and during epileptic seizures. A corresponding state of affairs comes to pass during some not altogether abnormal emotional states. For example, intense fear, with desire to flee from the fearful object, or great anger, may render a person partially unconscious of everything but the one object. And usually, after subsidence of such an emotion, its subject is never able to accurately recall the occurrences that transpired under its influence.

One may explain all these conditions of defective coördination by supposing that there occurs a spasm of the arteries of the greater part of the brain, such as usually occurs during sleep, but at the same time a relaxation of a certain set of arterioles. In other words we may reasonably suppose that these conditions are due to an abnormal extension of that inter-arterial fluctuation which we have all along predicated as an essential cerebral process; once more proving the abnormal to be only a perversion of the normal.

But since such action of the arterioles is essential to concentrated mental operation, would it not appear that the brain of the hypnotic subject or the somnambulist is the most highly developed brain? At first sight, perhaps, but not on closer analysis. In the first place, it is almost axiomatic that extremes of functioning are abnormal, since normality is simply a term to express the average condition. But again it appears that the power to fix the attention vividly on concrete objects appeared early in mental evolution. Indeed, we may go further and say that the tendency to fix attention long on single concrete objects is an atavistic tendency that appears often in conditions of mental reduction.

Practical experience is corroborative. Susceptibility to the hypnotic influence, for example, is an attribute of low, not of high minds. Every experimenter knows that birds are good subjects, and that it is not the highest orders of birds that are most susceptible. It would even appear that not only the less intellectual species but the more feeble-minded individuals of

these species are the most susceptible. This is demonstrable *a priori*, since the hypnotic state plainly does not usually subserve a useful end in the struggle for existence. The rabbit who cannot gaze into the eye of the cobra and still retain wide enough sweep of mind to realize that safety lies in flight, is a weakling who ought not to propagate his species; and forthwith nature removes him with the aid of that very infirmity the existence of which makes him an undesirable member of her company.

If it be argued in objection to this that the orator and the poet when in a condition of mental productiveness are in a sense hypnotized, I answer that there is a radical difference in that their minds, though oblivious to many impressions, yet sweep a very wide plain of thought, with always sufficient perspective to make their own personality perfectly self-recognized. It is true, however, that in bursts of enthusiasm incident to such composition the mind may come to points of view different from those attained during calmer times, and in so far as this occurs, the tendency is an abnormal one, allied to the more commonly recognized forms of hypnosis. With hypnotism *per se* we have nothing to do here, but only with the hypnotic state in its salient relations to the dream state. We have seen that the hypnotic state is only a slight extension of that maladjustment of functions which takes place in every vivid dream. Such being the case, it scarcely needs to be said that hypnotism, in this view, implies no transfer of occult or other "principles," except ordinary impressions sent through ordinary channels. The recipient of these ordinary impressions, under certain circumstances, passes into the abnormal subjective condition of hypnosis.

Closely allied to the dream state also is the condition of certain delusional insanities. Those cases of melancholia in which the patient is completely dominated by painful delusions, place their victim, I believe, in a condition very little removed from that of the dreamer. Such a patient is usually anæmic and cachectic, and there is insufficient blood to furnish his brain with the stimulus to active vibration. Often he does not truly sleep for weeks, but his constant condition is one little removed above the level of sleep. He has scarcely a truer appreciation of his condition than has the dreamer, and the creations of his

fancy, however grotesque, seem as real as the vagaries of a dream. In the one case as in the other the line of vibrations is not sufficiently intense to give the ego a comprehensive view of the environment. So small objective realities assume proportions quite aside from their ordinary relative importance. And as the dream may be suggested by some objective appearance which it does not at all resemble, so the delusional mind may invent a train of grotesque conceptions, starting from some insignificant object in its environment, and, failing to note the connecting links, retain the same personality for the entire line of concepts; just as in the dream we saw bird change to horse, and horse to man, or the reverse, unbeknown to the ego. By such a transition, an insane person may develop illusions out of perceptions that in themselves were not perverted.

These concepts, too, may arise to singularly irrational proportions in the deluded mind. The concept will be seemingly powerful just in proportion to the singleness of its presentation to consciousness. While the mind sweeps a wide field of thought, it correlates the observed phenomena of its environment and gives them something like their true proportion in the mental vision. But when the mental field becomes restricted to a single object, all true perspective is eliminated by the absence of comparison. Were it possible for the mind to fix attention absolutely on one object, expelling all associative currents, that object would become an isolated existence, only differentiated as being *non-ego*; and it would make up the entire objective universe for that particular mind. All comparisons being by hypothesis eliminated, the object would become absolute. Meanwhile the subjective universe—the ego—robbed of all its associative paraphernalia, and limited to the single percept, would dwindle to insignificance almost infinitesimal, not even amounting to real self-appreciation—since that implies a wide range of thought. Conversely the objective universe—which may be in reality a pin-point—becomes an infinitely large and infinitely powerful universe.

Such would be the result were a truly concentrated loneliness of thinking possible. But, of course, normally such concentrated action of the mind could not be maintained. Associative currents would presently correlate the concept “pin-point” with other concepts and comparison would act as a magic wand

dethroning an infinite universe, "pin-point," and leaving an insignificant finite object. But in the case of the dreamer and of the delusional insane, the associative currents may be so feeble as not to establish themselves, and in the one case for moments, in the other for days or weeks, the painfully concentrated delusion may rule almost undisputed in the mind.

The more usual victims of this permanent delusional condition are the anæmic subjects of acute melancholia. But a similar line of experience may sometimes come during the depressed early stage of paresis, while the subject is apparently robust. In the latter case, a history of syphilis may usually be obtained, and it is reasonable to suppose that the patient suffers from an endarteritis which shuts off the blood in part, and produces a condition of encephalic anæmia, similar to that of the cachectic patient. In the paretic, as every one knows, a subsequent condition of arterial dilatation, particularly of the cortical regions, leads to a change of feeling, a sense of well-being supplanting the depressed condition. In the melancholiac, under favorable conditions the bodily anæmia is overcome, and with the return of general physical health the delusions fade away, a sense of normal well-being returns, and the period of depression and delusion is remembered as a time of terror, which the patient often aptly likens to a hideous and half-forgotten dream.

The salient feature of the conditions of mental aberration just considered is a maladjustment—a lack of proper coördination, between the mental processes. And this maladjustment resulted in a perverted judgment of the ego as to its own relation to its environment. In the nature of the case this must be so, since the ego, considered comprehensively, is the aggregate of the relations which are here maladjusted. These observations lead us, by antithesis, to a clear understanding as to what constitutes mental normality or sanity. If the kind of maladjustment that grows out of focalization of attention on one subject to the exclusion of correlated subjects is the salient point of departure from normality, then a wide sweep of the attention must be the criterion of sanity. And using "wide" in a flexible sense, this is strictly true. The eye must sweep a wide horizon and deep perspective in order to give us an accurate knowledge of our physical relations in space; and so the mind

must sweep a wide mental horizon and a deep mental perspective if it would gain a comprehensive and rational knowledge as to its relations to its environment.

Excluding all rays of light except a narrow stream through a microscope, the eye may gain a certain knowledge that it could not otherwise obtain, but that knowledge would be absolutely useless did not the memory of wider visions step in and correlate the microscopic object with an infinity of other objects great and small. So in strictly mental vision, concentration of thought on a single focus may bring out some idea that otherwise would escape attention; but that idea can never be regarded as sane or dependable unless it is at once correlated and compounded with the infinity of thought that at the moment make up the conscious and subconscious entity of the thinker. In the mental vision, as in the physical, the most active focalization must always bear upon a restricted area, which may lie in the foreground of the present, or, aided by memory, in the deep background of the past; but always the focal idea must be furnished with a deep and broad setting of penumbral ideas. The eye, which seems at a given moment to see only a single petal of a single flower, really sees that petal in its relations to other petals, to other flowers, to foliage, to an infinity of material things. And the mind which focalizes on the thought of that flower and seems absorbed in it, really has presented to it at the moment a host of vague concepts telling in the aggregate of the true personality of the ego. I cannot while awake and sane forget who I am and what I am, though I may fail to know where I am.

The very profoundest mind, and at the same time the one most eminently sane, is that which keeps constantly in view a very wide field of observations, and which is therefore able to constantly put its thoughts to the test of wide comparisons; while it is the essence of the insane mind to think in imperative concepts and to ignore the broad fields of association. So long as the mind is able to weigh its concepts, to class and label them, to make them fit a proper niche in the chamber of aggregate experiences, so long it is sane mind. So long as it can balance its concepts, it is not an "unbalanced" mind. But when an idea has come to assume undue prominence in the mind and to overbalance the correlative ideas, such isolated and accentuated

ideas come to partake of a delusional nature. The idea may be in itself a perfectly rational and true concept, or it may be a distorted and illogical one; the essential point being the lack of coördination between this idea and correlative ideas.

The presence of such a delusional concept may or may not coëxist with insanity. It would be a violation of the established usage of language to say that a race of people who believe in the divinity of a man—say Mahomet—are insane because of that belief, for such delusion is the established belief of the majority, and that fact constitutes its warrant as a standard of sanity. The presence of delusional beliefs is, therefore, by no means *prima facie* evidence of insanity. But, on the other hand, ill-coördinated (that is delusional) ideas are never wanting in any given case of insanity. It is, as we have seen, the very essence of the psychic reduction which we call insanity to so limit the mental view and so distort its perspective as to give undue prominence to certain data, and to unduly subordinate other data. So true is this that one might define insanity as a condition of the individual mind in which there are entertained delusional ideas which are not entertained by the aggregate contemporaneous mind, and which have a dominating influence over the conduct of the individual. I doubt not most alienists would demur to this proposition; but I unhesitatingly challenge any one to produce a case of insanity in which, on close analysis, delusional concepts as above defined do not appear. True it may be said that no mind gives an absolutely equitable interpretation to its experiences. But the delusional concepts of the relatively sane majority of mankind (referring now to the individual delusions, not to massed beliefs), do not for long have a dominating influence over their conduct. They are usually capable of readjustment and of being made to approximate normality. Just in proportion as they come to be incapable of such readjustment do they carry their possessor toward the realm of insanity.

An absolutely sane mind would be one that adjudged with absolute accuracy the relative significance of all its experiences—whose mental vision, to use another figure, had been perfectly corrected for chromatic, spherical and all other aberrations, and whose channels of reception were absolutely clear. An absolutely chaotic mind, on the other hand, would be one that

saw everything in distorted proportions and failed to accurately adjudge any experience. Both these extremes are theoretical; we know nothing of the absolute in practice. But between these extremes are minds of all degrees of gradation. Those above a certain average degree of accuracy of coördination, we call sane; those below this average, insane. The highest mind is that which sees at once widely, clearly and vividly. But it may often happen that a mind eminently well-balanced may see but a small field, or have no part of its field vividly outlined, and hence be the mind of a dullard. On the other hand, it may happen that an ill-coördinated mind sees a part of its field in so intense a light that it is correctly spoken of as a mind of brilliancy and acuteness. In this rank are to be found some of the great philosophers, most of the great religious teachers, the so-called *idiots savants*, and a large class of minds confessedly insane. Still lower lie the minds that conceive neither widely, clearly, nor vividly—whose view is both limited in range and of distorted proportions. Here, far from the realm of stable genius, and also distant from, though allied to the unstable genius, are found the minds of the great majority of the insane. The latter class claim our deprecation, tempered with pity; the erratically brilliant class may dazzle and teach us, but cannot be accepted as a model or ideal; while the eminently stable class must ever be the criterion of the race, toward which our aspirations will point and toward which evolution will carry the race.