GOULD, (G.M.)

DREAMS·SLEEP·CONSCIOUSNESS.

A Psychological Study

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DREAMS, SLEEP, AND CONSCIOUSNESS.

A PSYCHOLOGICAL STUDY BY GEORGE M. GOULD, M. D.

I. PREFATORY.

The design of this paper is to study the nature of consciousness and of its origin, from the facts of sleep and dreams. But since even one's own dreams are vague and elusive, those of another person must be particularly so, and, it therefore seems necessary to depend mainly upon one's own dreams for data. Hence the apparent egotism of the references to follow.

The facts supposed to be known are, some of them, as follows. A sensory, afferent, or centripetal nerve is one that conveys an impulse from an outlying or peripheral point towards the spinal cord and brain. In some ganglionic centre it becomes an efferent, centrifugal, or motor impulse, that is conveyed by the appropriate nerve to the muscles of the part first stimulated, and this part is accordingly moved or becomes otherwise functional. Stimulus of the nerve leading from the skin, at any point in its course, produces the same motion, and an electrode, thrust into the cortical centre, also produces it. But the action of this centre is also directed by the consciousness or will: we can move the foot without its having been hurt. Consequently, commissural, or associate fibres, must proceed from the motor centre to the organ of consciousness to convey its impulses to this organ, and yet others to convey mandates from consciousness to the motor centre. It is the same with every sense-centre; it must have afferent and efferent fibres uniting it with the higher centre of consciousness. These facts necessitate a localization of the organ of consciousness. Such cases as "The American Crowbar Case," and a thousand observations in vivisection and pathology, show that this organ is located in the frontal lobes of the brain. The theory of sleep and dreams now assumed is, that in sleep, all the subordinate centres of sensation and motion are non-functional, neither influencing the activities of the organ of consciousness nor influenced by it, and that dreaming is

the mimic play of the organ of consciousness without the stimulus, the inhibition, or the data—*material*—habitually furnished by the subordinate centres.

II. WHAT IS SLEEP?

So long as physiologists have not accurately determined the physiological conditions of sleep, we cannot be dogmatic in our definitions. But whatever else it may be, it is essentially a condition of rest. Our waking life is characterized as a life of action, that is, of the outlay of force. We picture to ourselves the great motor centres of the brain and cord as undoubtedly recouping themselves, even during waking activity, from the great manufactory of force, the digestive and assimilative system; but it is also necessary to suppose that, during waking, we are, as it were, "running down," trenching closer and closer upon both the store in reserve and the power of ready manufacture, so that a time at last arrives when all expenditure must cease and the process of restorage and restoration must have sole sway. Nervous phenomena are plainly phenomena of the discharge, guidance, and distribution of force. Functional activity everywhere exhausts, and necessitates periods of rest, regeneration, and restorage. It is this dynamic aspect of the question that is certain and suggestive. Sleep may be thus partly defined as the cessation of the functional activities of the sensory and motor centres that habitually consist in the reception or the discharge of force. Organs, whether of motion, sensation, or co-ordination, are not now pushed into action by the messages of command from the resting or sleeping centres. I am aware that this does not account for the difference that undoubtedly exists between the rest of sleep and that of waking. There is, of course, some mystery here, though I do not believe it a profound one. When awake, whether resting, or the origin of muscular contractions, a motor centre is probably the source of continuous discharge. All muscles have *tone*, many are required to be persistently innervated, and any or all may instantly require power. But in sleep the function of regeneration of nerve-force predominates over the discharging function. One organ cannot at the same moment perform two totally different acts or functions equally well, and hence one must be paramount. Now, unless discharging, a centre cannot affect either muscles or consciousness. If it do not affect muscles, it rests. If in addition it do not affect consciousness, it sleeps. When, in all motor and sensory centres the regenera-

tion or restorage function predominates over the discharging function, and when, therefore, the organ of consciousness receives from them no discharges, we have the general condition of sleep. Permanent predominant discharging constitutes the waking condition of centres, single or general; permanent predominant regeneration of nerve-force constitutes sleep. In this, as in many other respects, it is highly interesting to find, as has lately been done,* that the renal secretion of the sleeping-hours is distinctly stimulant and convulsivant, while that of the waking hours is soporific and narcotic. We thus see that by some not-understood method nature eliminates during wakefulness the material of the blood that would, if kept in it, dull the keen edge of action, whilst on the other hand, there is during sleep, strained out of it materials that would spur the centres into wakeful activity. This fact is very suggestive †

III. WHAT IS CONSCIOUSNESS?

A simple reflex act is one that proceeds from a single stimulus without the implication of other possibly-related centres. The subsidiary centre intermediating the motor response is sufficient to effect the objects of the act. If the act is more than reflex, if more than one centre has to intermediate the complex act, the impulse must proceed from a higher co-ordinating focus that uses the subordinate centres as its media or instruments. The centre of a simple reflex act may be called presentative, that or those of others placed over them, representative. Consciousness may tentatively be considered as the single and highest co-ordinating focus of all the representative centres, or the unique re-representative one Hither proceed the centripetal lines of stimuli from all points of the periphery. But a moment's consideration shows us it is not only a focus, and one exercising a re-representative function alone. The primary object of all stimulation is reaction; hence, like all its subordinates, it is also, and in fact largely, directional, executive, governmental. In sleep the subordinate or representative centres are not functional, no peripheral stimulus reaches it, and it issues no orders to underlying centres of motion.

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* *Lecons sur les auto-intoxicants dans les maladies.* Par Ch. Bouchard.

† It is also curious to find the popular belief that relatively more births occur in the small hours of the night, is scientifically true—see Dr. Swayne in *Bristol Medico-Chirurgical Journal*, Sept. 1888. One wonders whether the common belief that more deaths occur in these hours is also true.

IV. DOES CONSCIOUSNESS SLEEP?

Sometimes we have dreams in sleeping, sometimes we do not. Strict examination of our waking consciousness shows it is not a matter of memory: we do not dream all the time when asleep; we sometimes forget our dreams. Upon waking, we sometimes clearly remember our dreams, at other times our memory is confused; or, again, we are only certain that we have dreamed, but without a trace of what it is we dreamed; and lastly, we are often perfectly sure we had no dreams. Moreover, as all vital functions must have their rhythmical periods of rest, even the heart and lungs being no exception, so the organ of consciousness must sleep. In this fact lies the explanation of what must be considered the pathological character of the consciousness of a vivid and continuous dreamer. An organ of consciousness, if kept by its own hyperæsthesia, or by the fevers and abnormalities of its subordinate centres, or by the unremitting bombardment of multiform sense-stimulation, in a condition of unrest, must exercise an irregular and poor waking control of the body. If the general never slept, his army would soon sleep—the sleep of the vanquished. Forced wakefulness was the most horrible of ancient tortures. The physician well knows that his prognosis often depends upon the effect of his hypnotic.

V. THE DIFFERENCE BETWEEN THE DREAMING AND THE WAKING CONSCIOUSNESS.

The waking consciousness, as we have seen is the highest unifying centre of the whole organism. It is the focus wherein memories of all past experiences are correlated with all present stimuli or motives, and whence the command is given that is best to subserve the preservation of the organism. The dreaming consciousness* in the first place, is evidently deprived of the great body of present incitants to action: all stimuli are wanting, all subordinate centres are functionless. What material has it to work upon? From what data must it now proceed? Plainly, those of memory only. But in dreams it is a striking fact that remembered things are not orderly, they do not correspond to reality, but are fantastic and untrustworthy. Why, then, does the waking and sleeping memory

* Unless specified, and especially now, I mean by the dreaming consciousness, the placidly, reflectively, dreaming one,—not that peculiar one in which the suffering struggling consciousness is ehemently endeavoring to arouse subordinate centres,—a condition strangely called "nightmare."

differ in such a highly important matter as correspondence with reality? Evidently because in sleep the control of reality is not present; because memory is a function of subordinate centres as well as of consciousness. No more satisfactory conception of memory can be given than that its physical basis consists in a faint reproduction of the same ganglionic discharges that took place in full force at the time of the original sensation or action. If, therefore, the subordinate sensori-motor centres are not discharging toward the consciousness-centre, all that is left in this centre is *the memory of a memory*,—and, in fact, such a designation alone conveys a conception of the unreal and ghost-like nature of the memory of the dreaming consciousness. This centre in dreaming acts weakly and faintly in the same way that it formerly acted strongly when fed by the full forces of its waking subordinates. But in sleeping it remains without the control of reality, which is always logical or obedient to the law of causality; and hence, in so acting, it must be illogical and fantastical.

VI. ORIGIN AND NATURE OF THE WAKING CONSCIOUSNESS.

The organ of consciousness is single, specialized, and localized. Dreams show us that while the habitual sensori-motor functions and all stimuli are absent, consciousness may be intensely active. Its essential functions are preserved in sleep, and this, were it a cerebrally diffused organ, would be impossible. From of old consciousness has been compared to the constriction of an hour-glass through which the sand must pass grain by grain. But one train of ideas can occupy consciousness at one time, and it is always a train, a line, a succession of single stimuli, to which it reacts. This is equivalent to saying that it reacts to the strongest stimulus presented at any one instant. This is its simple form, best illustrated in the consciousness of the dog, where it is always and as it were, mechanically responsive to the presented object. However obedient and engrossed by a duty or demand upon its attention, let there suddenly appear another stimulus,—another dog, a physiological need, etc.,—and previous objects of attention are, as it were, annihilated in the total engrossment of consciousness with the new object. It is the same with almost all animals. Remembrance of past danger in all hunted animals keeps consciousness keenly alert to the signs of danger, so that the appearance, even the thought of such signs, at once floods the organ of consciousness with powerful stimuli, to the exclusion of all others.

Indeed, it does not seem absurd to suspect that the escape from danger has been the strongest factor in the development of consciousness. It would certainly emphasize the quality or ability of differentiating self as the object of consciousness, and setting it clearly forth as the chief object of solicitude. An animal rises in the scale of intelligence just in proportion as it is capable of preserving clear memories of past experiences individual or racial, and of fusing these with the present stimulus so that the resultant action shall most successfully secure the preservation of himself and his species. The essence of the matter consists in this fusing process, and the consciousness of man differs in no essential characteristic from that of animals except that, at the instant of fusing, a wider sweep of possible results, a more reflective weighing of more diverse experiences and complex motives, enters into the count. Extension of the weighing time, complexity of the pondered objects, and delicacy of the balancing mechanism—these are but differing degrees of the same powers that belong to both alike. The first to be evolved must have been the extension of the weighing time. The mechanical jumping from one presented object to another with unpondering rapidity is naive but primitive. That the serpent in all antiquity has been worshiped as the wisest of animals, may have been because we catch in the restrained glitter of his eye the ability to ponder conflicting motives and stimuli longer than others. Action does not follow stimulus with the celerity of a mechanical force. In the struggle for existence, that animal would rise above his mates, which, other things being equal, could at will prolong the time between the reception of competing stimuli and the resulting action. With this ability would go, *pari passu*, the ability to handle more varied stimuli and motives. Delicacy of equilibration of multiform forces held long in suspense, is only possible to the highest human consciousness, and is its superb characteristic.* Thus to hold in suspense many competing stimuli, and weigh them accurately, would require a large and complexly organized centre such as the frontal lobes, whose human development has been exactly proportional to the growth of intelligence. After a period of imaginative excitement or crea-

* Discriminative attention is a human faculty, and appears to be either a selective receptivity of the organ of consciousness, an exclusive reception by it of one kind of stimulus, or the exclusive direction of its innervation upon a single or a special set of subordinate motor centres.

tive intellectual work I have a sense of constriction and tension in the frontal lobes, and especially of the right side.*

VII. ORIGIN AND NATURE OF THE DREAMING CONSCIOUSNESS.

It is of the very nature of the waking consciousness that it must be always responsive to some stimulus; that it must be equally responsive to either of the many and varied possible stimuli; and, lastly, that it must respond to a stimulus of low intensity, however delicate it may be. It is this delicacy of action that I wish to emphasize. Irritation at extreme or unnecessary noises; æsthetic pain at crude and loud colors; sensitiveness to differences of stimulus of any kind; distinguishes the highly organized personality. There is no bolometer or other instrument of precision delicate enough to measure the inconceivable minuteness of the force that is sufficient to influence consciousness. This quality proves of profound service in sleep. When the animal or man lies down to sleep, I think that, at first, consciousness also sleeps, since to some extent it also must yield obedience to the general law of the rhythm and rest. When sleep is permitted, it is because it is safe to permit it. Hence sleep may at first be dreamless with less danger to the organism. But, since the struggle for existence began, the sleeper has needed a sentinel to stand watch over him, and be on the alert for any one of his thousand enemies. When one thinks of the manifold agencies of harm such as fire, robbers, impure air, malposition of the body, too great heat or cold, physiological needs or pathological conditions, etc., etc., to which the best protected and most civilized people are

* Still another indication is the fact daily observed by every physician, that eye-strain is a frequent and persistent cause of frontal headaches. It may be worth noting that, like the centre of articulate speech, the organ of consciousness must, by its very nature, be a single organ. Bilateral symmetry is the law in most other functions of the body and its nervous mechanism. Speaking evolutionally, articulate speech is an accidental afterthought, and so must be located upon one side or the other of the two-sided brain. Upon *which* side, is not only not invariable, but it is even found to follow—or cause?—the education of the opposite hand for intellectual work. In a recent very interesting case the speech-centre was proved to be localized upon the left side, because, though the man was left-handed for everything else, the one intellectual act of writing was done with the right hand. Arguing from analogy, it might be supposed that the organ of consciousness for right-handed people would be found in the left frontal lobe, since the right hand is the one most generally used for intellectual things as writing, gesturing, etc. There are other considerations that would argue the reverse.

liable, and how insecurely most of us sleep,—and when we add to all these all the dangers and enemies and perplexities of the savage or the higher animals, we can then vividly realize how necessary such a sentinel is for the preservation of the organism and the species. That the period of the exhaustion of consciousness is more brief, that its resumption of function would be more speedy, than with other organs, goes without saying, and especially since its function is mainly equilibrational, directional, mirror-like, re-representative, —not creative, remoulding, motor or representative. I am certain that my dreams grow more vivid toward the time of awaking, just as I have no dreams in the first hours of sleep. My own dreams also show plainly the sentry-like function of the dreaming consciousness. I am very sensitive to malposition of the body in sleep. Pressure upon a nerve-trunk is with me extremely prone to produce the phenomenon popularly known as "sleep" of a limb. For this reason I sleep upon a hard bed, and I can sleep in but one position, upon my back without pillow, and without flexion of any limb. If by accident these conditions are broken during sleep, I have as a result a peculiar experience that has happened to me repeatedly and all through my life. My dream at first takes on a tinge of impending danger until I become aware that I must awaken myself. The labor of doing this is both powerful and painful. I am truly conscious of my effort, of a struggle with my dormant members. The energy spent in endeavoring to arouse myself is tremendous. At first I can perhaps move but one finger, then I can bring other fingers into the control of the will, finally the alternate flexions and extensions include the hand, and I may have to wave and thrash the hand and arm for sometime before arousing a sufficient overflow of stimulus to reach other motor centres and spur into the condition of "awake" all the sensory and motor centres of the body. Sometimes the head is the movable part, and this is rotated from side to side with ever increasing extent and quickness, until the general arousing is attained. All this is to me an indication of the sentinel function of consciousness during sleep, of its quick response to slight stimuli, of its directional control of subordinate and representative centres directly intermediating muscular action. It also shows that it is executive only through its agents. Its motor commissural fibers must end in the direct motor centres about the fissure of Rolando. But it also implies that its sensory fibers are, in part, direct, and warrants our belief that the great bundles of centripetal fibers proceeding from the periphery, split, and whilst

the greater number proceeds to the direct sensori-motor or representative centres about the Rolandic fissure, a limited number proceeds directly to the organ of consciousness. Such an anatomical arrangement would explain the sentry-like function. It would thus become clear why a peripheral stimulus, as a malposition of the body, could arouse the light-sleeping organ of consciousness, which, in turn, could arouse the representative or direct motor Rolandic centres. As will be noticed, the dynamic aspect of the question is always decisive, since the control of subordinate centres is only at first of the smallest, or most easily moved muscles, such as the fingers, a hand, or the head placed in unstable equilibrium. And not only this,—I have often had the sense of weight and discomfort of a limb before I had succeeded in awakening the centre that controlled that limb. The argument for direct sensory fibers to the organ of consciousness is still further strengthened by the frequent phenomenon of my sleep that follows: Upon being aroused by a very sudden noise I have often clearly recognized the fact that I hear the sound with my consciousness, if I may be pardoned the seeming absurdity, before I do with the auditory centre. The vibratory impact arouses consciousness a moment before it arouses audition. The safe-guarding function of consciousness in sleep is thus again exemplified. In "*Science*," Nov. 2, a correspondent describes an interesting phenomenon of his dream that also throws light upon this aspect of the question. The strokes of a wood-chopper were, in the early part of the dream, irregular and without order. They then became rhythmical for four strokes and then the sleeper awoke to find the clock striking midnight. After awaking he counted four beats and thus he knew that the clock-strokes brought into the dream their rhythm at about the fifth stroke, and made the axe-strokes coincide with the clock-strokes. In other words, the sound and its rhythm reached consciousness directly, impressing upon it their own peculiarities, which persisted for a time until the stronger stimulation of the auditory centre aroused all the mind into "awakedness." * Finally, there is one other curious illustration of the

* In a late dream my fancy took on a musical remembrance or coloring, and the same may have been aroused by the miaulings of a cat below the window. Before awaking, the music of the dream was consonant with that of Thomas, and was exceedingly grateful and musical. When the caterwauling became loud enough to awaken me, the pleasure of the dream was suddenly changed into disgust at the unmusical noise of the cat, that an instant previously had been one and delightful. In this it is also possible to suppose the stimulation of consciousness was from and through the auditory centre, but

question that also shows the delicacy and the independence or the action of the sleeping consciousness. I allude to the ability possessed by some people of, as it were, winding up the alarum of their mental mechanism so that they shall awake at a given hour. I have known people that sleep soundly and awake habitually within a few minutes of the time they had, upon going to sleep, determined to awake themselves. My own attempts to do this always result in lying awake the most of the night. My alarum goes off at a *soupçon*, entirely too soon, and keeps on rattling, at a rate!

Hypnotism, it may parenthentically be remarked, would seem to be the reverse of the dream-state. In the latter there is no centripetal stimulus, the subordinate motor centres being quiescent. In the hypnotic state the senses are alert, the sensori-motor centres actively functional, but the centre of consciousness is asleep, or, what is the same thing, supplanted or enslaved. How this can be done is a mystery. However well attested one is inclined to think it impossible, and that it does not happen, except in the natural way that a pliant weak mind finds satisfaction in acting a rôle, called the hypnotic state.

VIII. INSOMNIA.

In passing we may note the influence of the kind of waking life upon the dreaming consciousness. Work, especially physical work, but even normal mental work, is usually followed by refreshing and comparatively dreamless sleep. Worry, solicitude, and vexation, bring troubled dreams and even pronounced insomnia. Why is this? In normal exhaustion of the nervous centres there is no conflict nor unwonted excitation of the centre of consciousness. There is a low reserve, and investment, or action, must cease until interest or income accrues. In long-continued anxiety, however, consciousness is stormed by a multitude of conflicting and continuous stimuli, leading to no definite resolve and action, and

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that too faint or imperfectly worked-up material was furnished. It seems more probable that the stimulation was directly from the external sense-organ without the intermediation of the sound-centre. Just as fibres proceed from the cochlea to the cortical auditory centre, where neural vibrations become sound, so it would seem that other fibres proceed from the cochlea to the consciousness-centre intermediating its direct stimulation. If in my dream, consciousness had been fed from the auditory or musical centre, it could hardly have mistaken the cat's misery for music. The same may be said as regards my dream of being intensely "tickled" by a hand beneath the chin to awake with the sudden thought that my neck is not the least "ticklish."

hence ending in a surcharge of energies, probably a real hyperæmia and febrile excitation of the organ, that do not cease at night or with sleep. I do not doubt that the frontal lobes of a man dying finally worn out with years of care and disappointment, would, under the microscope, show a different condition from those of a healthy and happy man. On the other hand, if hyperæsthesia is pathological, anæsthesia is certainly indicative of a poor type of consciousness. That must be a vegetative sort of consciousness that sleeps as soundly and as long as the lower centres. No nimble-witted man can fail to be a dreamer. *My* friend must be a dreamer of interesting dreams! One that does not dream is not exceptionally sympathetic, responsive, alert;—he has not highly keen sensibilities, is not nobly religious, or charitable, or aspiring.

I have always been subject to insomnia of the following kind,—I am apt to have periods of paroxysmal, emotional, and imaginative excitement. If I am pursuing an object of study, trying to solve some scientific or practical problem, or if greatly interested in some work of art, etc., I habitually awake in the night after a short sleep, and at once the whole machinery of intellect, imagination, and consciousness is in full cry! The heart is aroused, and by the spur of excitement, is put into the field at full speed. It is clear that this organ of consciousness requires the best of blood, and a deal of it! All this would appear to be the overflow of nerve-force from the centre of consciousness along the centrifugal lines of its habitual discharge to the subordinate centres that are thus kept in a state of activity though really needing rest. All the devices for wooing sleep are but tricks to prevent the outflow. None of the methods commonly employed, help me, and they appear to be based upon a false principle. They generally consist in a repetition of the same discharges, or an exercise of the same subordinate centres. However often we count or repeat the letters of the alphabet, or in thought, walk up and down the same path, the mimic and weak outflow is by the same commissural fibers to the same subordinate centres. If I am ever able to succeed by any device at all, it is by deflecting, derouting, and subdividing the outflow in such a way that it does not flood any single subordinate centre. No single train or repetition of thought is allowed, the stream is divided so that each subsidiary centre gets such a minimum of excitation that it can resist it, and thus all are calmed. For example, I think for a passing moment, of each part of my body in succession, and of each function of the same, of each sense, with the

origin, course, and result of each sensation. Thus traversing the round, I, as I believe, drain off and subdivide the superabundance of innervation to every possible outlet. Instead of persistently *doing* something, or constantly exercising motor centres exclusively, it is better to trust to a mimic sensational exercise. Thoughts of personal motion are outgoing and stimulating, thoughts of visual and auditory sensations are receptive and calming. Another device I have successfully used is to imagine myself in mid-ocean, becalmed, alone, not frightened, and looking out over a monochromatic ocean to all points of the compass successively, thinking of all the strange life in the depths below me whose bottom leads on and on to distant isles,—watching also the starlit space above, as it pales into magical sun-rises, and the ever-changing phantasmagoria of cloudland flows ceaselessly by.

IX. GENERAL CHARACTERISTICS OF DREAMS.

Most of my dreams are of actions. I do things, or try to do them, or am the object of the acts of others. Very few are contemplative, intellectual, or purely sensational. This shows that the mimic stage of dreamland, in a general way, is the same as that of the waking life. Consciousness is most habitually employed in the direction of the activities of the motor centres.* Historical man even more than at present has been an active, not a contemplative, reflective, or receptive being. The mimic exercise of motor function by the dreaming consciousness produces for me two types of dreams: first, the clogged, heavy, and impeded, in which the feet are stuck fast or weigh a thousand pounds, etc. I think this is a familiar sort of dream, and finds its *rationale* in the resisted efforts of the organ of consciousness to arouse the subordinate sleeping centres of motion. In the dream we do not know why we cannot lift the feet, or reach the succoring hand; we are only intensely conscious that the foot or hand are sluggish and benumbed—as in truth they are. Consciousness sends its mandate to the Rolandic centres, but there is no response. Hence the gene-

*A dreaming dog presents a suggestive picture:—the paws jerk, the lids quiver, the jaws snap, he barks little short spasmodic barks, or he growls and whines. I picture the consciousness-centre intensely active, the chase in his dream is wild. The subordinate centres are partially aroused by the overflow from the higher centre, but not normally functional until such a pitch of excitement is reached that, in the culmination of the dream, all and several are "awakened."

sis of the so-called "nightmare." Resisted and unresponsive effort arouses fear and further effort. Bodily malposition may also serve to beget the endeavor to arouse subordinate motor centres. A co-related fact may be bracketed here. A familiar dream experience consists in dropping or stepping off some high place, or falling through the air, and with the drop, or the crash, we awake in fright. If our conception of cerebral action is correct, this would find its explanation in the loss of the habitual checks and control of the lower sense-centres. When awake, consciousness exercises control of the muscles and saves the body from falling. When asleep, the command is also given, but the lower centres and their muscles do not obey—and we fall. Not only this, but the danger of falling, the predicament we are in, is aroused by the fact that the inhibition and checks of sense-control do not exist in sleep to keep us away from heights and dangerous places. Consciousness records the *efforts* of will we make, as if they were registered in action, and it sees no difference between willed act and motor fact.

The second class of movement, or action-dreams, is the reverse of the first, and consists in movements not only unencumbered, but of transcendent ease. The glorious pleasure of supernatural power and action is indescribable. I often awake quivering with the intense pleasure of free, swift, and confident activity. Sometimes it is a sort of skating or gliding across countless miles of country or ocean; sometimes it is a giant-like striding from mountain-top to top; sometimes the perfect eagle swoop through the blue of space, effortless, and superb! May this be thought of as either a normal play of the organ of consciousness with its own forces, or as a healthy mimic outflow of innervation along the usual routes to the subordinate centres of motion, which, in comparative exhaustion, absorb the inflow without themselves being aroused to an active outflow of innervation?

It has been a source of wonder, that in the classical haschisch dream of the De Quincey type, an eternity of time is compressed into a moment, and, to the rioting consciousness. that moment is indistinguishable from the actual detailed facts of a thousand years. In the same way, space broadens, and the body itself, or the room it dwells in, becomes wide as the starlit night. Personality may even seem to double, and thus again enlarge the boundaries and possibilities of experience. Is not all this also a corollary of the anatomical and physiological conditions of the organ of consciousness? We have memories of waking life only as things and events

transpire that memory records: but the evolution of a tree, or a world, or a life, is a *slow* process. But, to the mind, in the condensation of thought, it becomes an instantaneous thing. We can think the evolution of a solar system in the flash of an instant. It is *fact* that draws this out to ages. In sleep, let us again repeat, facts and all their qualities are lost in the loss of the lower centres of sensation and motion. Hence the mental review of time-stretches and the multitudinously-linked chain of facts becomes temporarily as much of a reality to the dreaming consciousness as if the law of causality were truly operative. It does not suspect that its phantasmagoria is not real, because, so far as itself is concerned, it *is* real We must remember that consciousness is never directly touched by reality. It only receives the echoes and representatives of reality. In the haschisch-dream it is not suspected that the thousand years are not actually passing. It is only when we awake and compare the dream with the slow and droning march of causally-linked things that we recognize that the thousand years were condensed by the wizard of consciousness. Memory is in truth only the memory of psychical happenings, and as these, essentially, are almost, if not absolutely, timeless and spaceless, it follows that the passage of a cycle of material events may be swept through the hour-glass constriction of consciousness in a brief moment. Or again, we may in dreams wish or will to do a thousand things in a flooding instant of boundless desire, that a world and an eternity could not realize under the conditions of causality. But it is apparent that to the dreaming consciousness this crowded rush of desires and willings is as real, apparently as subject to time and its laws, as if the lower centres were not asleeep. It is these lower centres that give to it the term of comparison and enslave it in the treadmill of reality. In sleep the noble slave is temporarily set free: sleep seals the eye-lids of its masters, the spirit rises out of the chains that bind consciousness to reality, and the divine slave at once comes into possession of the universe as its absolute plaything, whilst over its fancy hovers the superb child's hallucination that the paltry nothings of its imagination are real suns and stars and worlds, the actual march of cosmic event and the pomps of eternal time! Its mimic play and lightest wishes instantaneously become incontrovertible and unquestioned facts. Had they reasoned of the world of dreamland, those philosophers that resolved the world, with its laws of time and space and causality, into mentality, would have been wiser than they were.

A pronounced characteristic of all dreams is their great lack of logical correspondence with the laws of the real world. In dreaming this is not recognized. The most intolerable absurdity seems perfectly natural. One face or person fades into another, we take hundred-mile steps, we do things outrageously *mal-à-propos*, without a suspicion of their incongruity. I gather from this that the waking activity of the organ of consciousness is regulated and governed by the multiform stimuli of the subordinate centres. In a certain sense and in the light of evolution, the organ of consciousness is an outgrowth and product of these subordinates. In the waking life their messages must continually be sent to the higher unifying centre. The product of their combined influence must be inhibitory and regulative, In this way there is produced the sanity, the correspondence with reality, that marks the orderly, mirror-like function of our waking consciousness. The essential characteristic of sleep is the non-activity of the subordinates, and hence the unregulated and fantastic mimic life of the organ, acting without data or content. The restraining checks and the completing fullness of the influences of the lower centres, are removed, and hence the inevitable result is inconsequentiality, illogicality. Another reason for this fantasticalness lies in the fact that even in waking the work of consciousness consists in no exclusive occupation with one set of stimuli. Strictly speaking there is no habit of consciousness. It must remain at the instant service of any or many orders and kinds of control, whether of sensation, memory, or various motive. When removed from the inhibition and control of reality, consciousness could not be supposed to show an order and logicality of succession it had never had in real life.

Depriving it also of content or *matérial* would all the more emphasize its whimsicality. In dreams the sense of the incongruous or the ludicrous is with me of the extremest rarity. The humorous is the incongruous, and this is a failure of correspondence with the real. If the comparison with reality be excluded, then, though every dream be incongruity itself, recognition of the fact by the dreaming consciousness is infallibly excluded. I have sometimes been awakened by my own laughter at some apparently highly absurd thing, but when awake I have been just as much disgusted at myself to find the plainly-remembered dream in reality contained no vestige of the humorous.

X. DIFFERENCES BETWEEN THE DREAMING AND THE WAKING CONSCIOUSNESS.

I preserve in my dreams most of my stronger æsthetic, deeper moral, and passionate feelings or emotions, but with noteworthy differences. These differences may perhaps be summed up by saying that in dreamland the factitious elements and refinements of a superposed civilization fall away, leaving in relief the nude realism of primitive and disingenuous personality. For example, the occasional prevalence of generative instincts might alone convert one to the doctrine of biology covered by the adage, *omne vivum ex ovo*. Assuredly, restraint and scruples concerning such matters are not known in dreamland. The chastest do not blush there. I rarely have any care for clothes or nudity there, and the *bizarrerie* of my dream-plights in this respect often amuses my waking consciousness. In one way I think it remarkably confirmative of my general thought that, as the savageness of the brute and the selfishness of the animal come out in intoxication, it is not so in dreamland. Rage, destructiveness, tyranny, delight in power—these are almost never present. The reason is that the power-producing, or motor centres are asleep. Neither is hypocrisy known in dreamland. Falsehood is largely a product of civilization. There are few of us that are not forced into subterfuge, pecadillo, and even cowardly lies, by the conventionalities and disguised warfare of civilized life. Consciousness is in truth ethical and unselfish: it holds the balance between the selfish greeds of the lower centres. In sleep these last are forced to stop their wranglings and their competition for place and recognition, and it therefore never occurs to dream-consciousness to lie or deceive for selfish reasons. Morally, dreamland is a brighter country than our noisier world. If dreams tell us anything about our essential personality, they argue against our innate depravity. I think I am more kind and careful of others rights in dreamland than in awakeland. In the last country I have to endure many grievous hurtings of my feelings in the matter of cruelty to animals. In dreamland my indignation at it is constantly aroused. I may see nothing absurd in a fireman compelling his beautiful horse to pull the fire-engine by a three-tined fork thrust through the animal's nose, but I awake, boiling with rage and vowing to arouse society to a recognition of the shame of it all. Unless feelings of profound pity, contempt, indignation, etc., are aroused, I find that in dreamland I am, not immoral, but unmoral. Unless a lie hurts somebody in

a way to arouse fervidness of feeling, I do not greatly hate the lie or the liar. But if the lie produce injustice or wrong I hate that, and the author of it, though not because of the falsehood.

In my dreams I have even killed others with utterly no compunction or regret, but with satisfaction that I had righted some wrong, or vindicated somebody, or succored the weak. I remark always the most unquestioned and enthusiastic acceptance of the fundamental passions of pity, love, justice, indignation at wrong, etc. These great forces of mental life have stamped their impress so deeply into the structure of the organ of consciousness that, even when the stimulus of fact is absent, when the subordinate centres are hushed in sleep, and sensation is non-existent, there still remains the play of nervous activity along the old lines, and with sufficient intensity to light up again the emotions that once blazed forth at the touch of the real.

As to the reasoning power, I find my dream-consciousness wholly devoid of it I have heard of mathematicians working out incomplete problems in their sleep, or the key to some scientific mystery or financial vexation reaching one at that time. To say the least such cases must be very exceptional. Judgment, weighing complex probabilities, induction by close lines of logic from manifold details to a single cause or principle, —all this presupposes a convergence of myriad nerve-currents from many and disassociated points, the focalization of many sensations, memories, past and present, etc., etc. To think is to ponder, and weighing is the essential characteristic of all judgment. But the dreaming consciousness is without judgment. It is always the incongruous with which it deals. Its workshop turns out good work only if good material is furnished it. It is fancy, imagination, feeling, sentiment, but never ratiocination. The subordinate centres that furnish it with material, that give it legality, and hold it to reality, are sleeping. The factory is without "raw material," and the hands go holidaying.

In matters æsthetical my dreamland is a revelation to me, and in this respect alone, frequently transcends reality. I have never taken a dose of *cannabis indica* or other cerebral stimulant. I have no need of such things. Released from the bonds of the actual, my imagination wanders in dreamland among supersensual delights and basks in the light that never was on sea or shore. I note this peculiar fact; in my enjoyment of dreamland-beauty there is an element of fervor, an implication of the feelings, that I can but

barely remember, not experience, as I stand before the most beautiful of real things. May the reason of this be, that in addition to the real being always far from perfect, there is in no waking human life utter oblivion of its painful and tragical elements, past or present. Every sense has been outraged, every centre of the brain has *suffered*, and even whilst these may send their most exultant pæans of major joy to the higher centre of consciousness, there must ever intermingle the minor notes and discords of want, insatisfaction, and pain, that keep its harmony from being perfect. But when all sources of such discords are hushed, when these lower centres are asleep, the freed consciousness can revel in joyousness under the fleeting illusion that its mimic life is real.

XI. PREPONDERANCE OF VISUAL SENSATIONS.

Motion and vision are the two great factors of mental life, and it is suggestive to find that those animals, that, so long as possessing motion, keep their eyes and the intelligence that coexists with vision and motility, when they attach themselves permanently to one spot, the eyes and intelligence are lost. Parasites are usually eyeless, and vegetable parasites are without chlorophyl. The whole wretched order of microbes, moulds, and fungi, the curse of the physician and of the world, are parasitical, and without chlorophyl. The insane, the idiotic, the weak-minded, the epileptic, have, relatively speaking, very subnormal vision, and a defective ocular mechanism.

Above the motor element, the predominant characteristic of my dreams is that they are made up of things seen. I do not remember ever to have dreamed of an odor, pleasant or foul, though often dreaming of perfumed or malodorous things. In the same way, though I have dreamed of eating, I preserved no remembrance of impressions of taste. The apple I ate—I cannot now tell if it were sweet or sour. Tactile sensation is somewhat frequently a component of dream-phenomena, but generally only in conjunction with another sensation or feeling that smothers it. If I am struck by another, the feeling or pain, if existent, is at once lost in some psychical emotion, of anger, or fear, etc. Pain cannot enter dreamland because the centres that feel pain are asleep, I never remember to have remarked in dreams that a thing was exceptionally and peculiarly smooth, or hard, or sticky, etc. I shrink

less from touching a foul thing in dreams than in real life. I cannot remember ever to have been cold or oppressively warm in dreamland. If I shiver from cold or am too near a fire I note especially the motion, or sight, or perhaps the feeling of the shivering instead of the cold, and I remember the danger, or the vision of the fire, not the pain. All of this is consonant with the re-representative function of consciousness. The senses are represented in it only when awake. As to hearing, few or none of my dreams contain any distinct records of sounds. I can express it no better than to say that the results of hearing are manifest but not the sounds themselves. I speak and am spoken to, and act accordingly, but I am never able to recall any *timbre* of voice, any inflection, emphasis, or pitch that causes the voice to be, at the time, thought of as remarkable, or that gave its noteworthiness, if it had any, enough vividness to project it across the bridge of awaking into a work-day memory. When awake, nothing so fires me with uncontrollable emotion as the music of Beethoven, Wagner, or Franz. I cannot remember ever to have heard music in dreamland.

But how different it is with the sense of vision! Everything not motion—and that is largely so—is a thing seen. How empty and destitute must be the dreamland of the congenitally-blind! To me vision gives dreamland all its beauty and most of its interest. It could hardly be otherwise, since the same is true of the waking consciousness. Intellect, indeed, is almost entirely formed of visual factors: every component of what we call psychic life and civilization is largely the product of vision. Language and the letters of the alphabet themselves are the records of things seen. Vision is at once the most metaphysical of real, and the most real of metaphysical things. Astride a ray of light Puck passes in a flash from matter to mind. The library of the soul, memory, is a picture-gallery. An absolute monochromatic world would force the spirit to suicide. Had all eyes been absolutely color-blind Psyche would not have been born. It is the associate fibres from and to the visual centre that binds together the world of mind and the world of matter, and that loans life its value, and crowns it with its one unalloyed delight. We sleep at night when the eyes, the great awakeners, ministers, and producers of intellect and life, are least utilizable. Few people, and only those of stolid and blunted sensibilities can sleep in the light, even with what darkness closed lids give. It is interesting to see how all living forms, both animal and vegetable, dwindle to wretched caricatures of life, when, eyeless

and colorless, they keep up existence in caves and in the sea-depths.*

XII. CHARACTER, THE SOUL, AND CONSCIOUSNESS.

In a superb story of Gautier, a lover by his power of magic is able to lull into a death-like trance the being of his successful rival. This lover then steals the body of the young husband, his rival, and, leaving his own soul in the entranced body to care for it, the passionate lover plans to trick the faithful wife. The conception is a proof of genius! Think of it! The lover stole a body that thereby he might steal a love, that, in the absence of his own body, was of course not carnal. On the part of the husband one meets a multitude of questions, principal of which would perhaps be, How far would he have been cheated had the thief been successful? On the part of the lady strange trials and mystic queries also arise. Remember that if only her husband's soul were absent, there were present every trick of motion, play of expression, *timbre* of voice, nay, every habit of mind and body that is in any way controlled by the laws of corporeal and nervous organization, or by heredity. What *would* be different? Both lovers would be equally kind, lovable, and loving. Both would express their inner feeling by the same acts and by the same mechanism. Some one said that the Yankee worked badly where soul and body touched. Would you suppose the thieving lover's soul could not avoid an awkwardness in handling the mental centres, and through them, the body, he had stolen? I bring the idea forward here to illustrate firstly, how far "character" is a matter of flesh and nervous organization; and, secondly, how little there is in the so-called "soul" but an impersonal force. If two of your best friends could change "souls," would you ever find it out? I confess that after a rigid exclusion of the elements of character that necessarily inhere in the action of the body and of all subordinate motor and sensory centres, I find, if anything be left, it is a very impalpable and impersonal somewhat. Now this is precisely what sleep does. If, therefore, the dreaming consciousness could have its photograph taken, it would have no recognizable or distinguishing trait of expression. We should never know our disembodied friends. Dream-personality has no individuality. And thus, through physiological psychology, we catch a glimpse of the profound truth that, at heart, we are all

* See, Packard, "On Certain Factors of Evolution," the *American Naturalist*, Sept. 1888.

the same. One common unity lives in us all, and our jealousies, bickerings, differences, and hates, are but the expression of the accidents of body; our love and kindness, the expression of the one life that feeds all our lives. Dream-philosophy teaches religion and sympathy. There is nothing more noble, or more philosophically demanded of us all than, to one another, simple kindness. It is at once the most human and the most divine thing in this sorry world.

It is evident that a cluster of nerve-cells in the cortex of the brain whose function it is to receive stimuli and answer the same with messages, *e. g.*, to a muscle to contract,—it is clear, that such a mechanically acting centre is not the "soul," or even a part of it. A paralyzed man is just so much a man spiritually and mentally as before the atheromatous blood-vessel drowned the Rolandic convolution. Paralyze every bodily muscle and the fact remains essentially the same. But it is not so with the frontal lobes of the brain. Render them functionless by trauma, disease, or the hypnotic enslaver,—and consciousness, mind, soul, give no evidences of existence. Slice off the frontal portions of the brain of the poor pigeon, and life, power, habit continue, but not what it had of mind. We may be thankful that to the vivisectionist it is impossible and useless to slice from behind forwards and leave only the living organ of consciousness. (With the present "scientific" *Zeitgeist* there would be more disembodied rabbit, guinea-pig, pigeon, and even human criminal souls, wandering about, seeking re-incarnation, than Hindoo mystic ever dreamed of!)—But this is almost exactly what sleep does,—harmlessly, and lovingly, however, and it is of the greatest interest to see what a world is left after all peripheral stimulation and subordinate centres are stilled into temporary death by its kind hand. Dreams show us how great is the world, how shadowy a thing is the essential *ego*. The soul, deprived of the body, seems quite as unreal and phantom-like as any of Charon's passengers. It is so profoundly dependent upon the crude senses and experience, upon memory and motion to give it regulation, order, and reality. As, one after another, sleep strips us of these things, that at best, are but supplies of soul—so paler and ever thinner, ever less individual, grows the *ego*. Picture-making in its last analysis is not strictly psychical, and yet a visionless world would be absolutely a soulless world. Dream-consciousness is consciousness without adventitious aids, physical props, content, and checks,—it is consciousness, *per se*,

it is, in truth, a fluttering memory of a memory of past experiences; its life a mimic play; its phantasmal existence is upborne upon the ghostly wings of past sorrows and joys, and tied to reality by the tenuous thread of a momentarily interrupted sensation. Its master, the body, suddenly tugs at the silken cord, and from freedom it swiftly descends and slips into the yoke of reality, attentive to the thousand demands of its imperious and all-precious sovereign!

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