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ON THE HASCHISCH OR CANNABIS INDICA.

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[Communicated for the Boston Medical and Surgical Journal.]

THE various periodicals of this country have abounded, during the last few years, with accounts of the Haschisch; every experimenter giving the history of the effects it has had upon himself. In most cases this has been mingled with much fanciful and irrelevant matter. These notices have been confined almost exclusively to the various popular literary journals, but it has not received the attention it merits in those exclusively devoted to medicine. Under these circumstances, the following *résumé* of what has been written on the subject, seen through the medium of personal experience, may not be destitute of interest.

Among the nations professing Mahometanism, there are not a few substances used as substitutes for the alcoholic liquors interdicted by the author of that religion. They are everywhere the most inveterate users of tobacco, opium, coffee, and a variety of other narcotics less generally known. Among these latter, no one has recently attracted so much attention as the *Haschisch*, *Cannabis Indica*, or Indian Hemp. It is only within a few years, comparatively, that a knowledge of it has come to us, but it has been in general use for many centuries at the East, and reference is even thought to have been made to it by the ancient classic authors. The novelty of its effects and its apparent harmlessness have induced travellers in Egypt and Asia to experiment upon themselves, and a knowledge of it has thus found its way to the nations of the West. The defective pharmaceutic processes employed by the inhabitants of its native countries, render its preparations of very different strength, and admixtures of various foreign substances make its effects uncertain. A specimen obtained from Damascus contained about twenty-five per cent. of opium, a considerable quantity of camphor and spices, and nearly half was a mixture of rancid butter and extract of hemp. The substance widely known in this country

under the Arabic name of *Haschisch*, is obtained by boiling the leaves and flowers of the plant with butter, and, when pure and carefully prepared, is a very active preparation. The extracts prepared in this country from the Indian plant, contain all the properties of the *Haschisch*, and are every way preferable to it. The common hemp, though believed by botanists to be a variety of the same species as its Indian congener, is entirely destitute of the property which distinguishes the latter. This difference alone, if found to be permanent, would be sufficient to cause them to be regarded as distinct species.

The action of the drug is not confined to any single part of the system. It is an efficient but slow cathartic, an active diuretic and sudorific, and a most irresistible hypnotic in the latter stages of its action. But it is better known for its effect upon the nervous system; it is for this object that it is extensively employed in the East, and it is in this connection that it possesses its greatest interest. Abundant personal experience of it leads me to think that its peculiar effects upon the nervous system are only a secondary result of its action upon the mucous membrane throughout the whole track of the alimentary canal. The slowness of its action, not commencing in less than two hours after the dose is taken; the sensation of dryness, and afterward the abundant secretion in the throat and mouth; the heat throughout the abdomen, and the soreness which persists for several days; and, finally, the absence of any symptoms of nervous debility, when the immediate effects are gone; all point to this as its *modus operandi*. It would seem as though it were absorbed, and that in this process of being thrown off, it occasioned those phantasies which have caused it to be used as an intoxicating agent. In the dose usually recommended, of from one to three grains, it is absolutely inert: five grains is the smallest quantity from which any perceptible effects are to be expected, and generally more will be required. Few persons, perhaps, who have read the brilliant "Confessions of an English Opium Eater," have been without a fancy to experience the wonderful effects there described: all who have yielded to the desire, have been disappointed. If any one supposes the intoxication of *Haschisch* to be of the same nature, a few grains of the drug will most efficiently purge him of the idea. On the first trial, one is generally frightened at the intensity and violence of its action, and few will be disposed to carry the dose beyond ten grains. Indeed, most will be amply satisfied with having once experienced it. The following were the results of a moderately large dose of Tilden & Co.'s extract.

It was taken with coffee, which increases the effects of the hemp, and at the same time diminishes its duration, perhaps merely by promoting a more rapid absorption. For two hours no results at all were experienced. At this time a dryness seemed to

commence at a particular spot in the throat, and a feeling of warmth throughout the abdomen. These were not the results of disordered sensation, for a clammy mucus soon began to be secreted, though the huskiness of the throat still remained. Up to this time, there was not the slightest excitement or confusion of thought. Suddenly, however, an idea having no connection with the train of thought passing in the mind at the time, appeared, as though suggested by another person, and then was gone again as suddenly as it came, leaving upon the mind much the same feeling as when one escapes from a dream or a deep reverie. The same thing was repeated two or three times, at intervals rapidly diminishing in length. Even now I can hardly believe but it was the result of strained attention to my physical sensations, for the gentle warmth of the abdomen was rapidly becoming a burning heat—still, however, not by any means unpleasant—and the dryness of the throat had extended to the tongue.

I had taken the drug with great scepticism as to its reputed action, or at any rate with the opinion that it was grossly exaggerated, and I accordingly made up my mind not to be "caught napping" in this way again, and to keep a careful watch over my thoughts. But while enforcing this resolution, as I supposed, I found myself, to my own astonishment, waking from a reverie longer and more profound than any previous. From scepticism, to the fullest belief of all I had read on the subject, was but a step. Its effects so far surpassed anything which words can convey, that I began to think I was on the verge of narcotic poisoning; yet, strange to say, there was not the slightest feeling of inquietude on that account. I resolved to walk into the street. While rising from the chair, another lucid interval showed that another dream had come and gone. While passing through the door, I was aware of having wandered again, but how or when I had permitted myself to fall into the reverie I was perfectly unconscious, and knew only that it seemed to have lasted an interminable length of time.

These singular attacks of mental disturbance recurred oftener, and lasted longer, till the lucid interval between was reduced to a mere instant's conscious duration of thought. This condition came on so rapidly, that in less than fifteen minutes from the time of my being aware of the first mental disturbance, the power of controlling the thoughts was almost completely lost. All ideas of time and space were especially bewildered, and I realized completely for the first time the ideas of some metaphysicians, that time, properly speaking, has no existence except in connection with a succession of mental operations or sensations. The most trivial circumstance, the slightest noise, gave rise to trains of thought, which went bounding from subject to subject, completely emancipated from the rules which ordinarily govern the mental ope-

rations, till suddenly some other circumstance would give an entirely new direction to them, and the last series of imaginations would seem to have lasted from eternity, even while the eye was fixed upon the clock, the hand of which had not perceptibly moved.

Now, a phenomenon still more singular began to exhibit itself. I felt that, in spite of all exertions, I was beginning to receive the suggestions of disordered fancy for real objective facts. Intellectually, I knew that the spinal column could not be a barometer, in which mercury had usurped the place of the spinal cord. Yet in another sense, over which the operations of the intellect were completely powerless, I felt that it was a barometer. An unpleasant sensation in the lumbar region suggested the idea of a heavy column of mercury pressing upon it, and at the time, and under the circumstances, the transition to the idea of the barometer was easy and natural. There was no balancing of arguments in the arrival at this conclusion; there was no half-way period of doubt and uncertainty, to emerge into full credence. At the instant the idea occurred at all, it commanded the assent, with the same fulness as when in perfect mental health does the idea of our own existence. The thought certainly occurred that it was a delusion, but it made no more impression than the suggestion would, that the sense of sight was a figment of the brain, and objects seen had no existence except in the imagination. This belief was not a transient one; it was the first hallucination to appear, and continued with varying degrees of intensity, as the thoughts were more or less occupied with other subjects, till all others had disappeared. The belief in the reality of the delusion was never for an instant absent; it pervaded the whole being, and was often the point on which the thoughts turned seemingly for a long time. The painful attempt to regulate these disturbed states of consciousness, was soon given up, and, half voluntarily, half by a species of moral compulsion, the whole psychical nature surrendered itself, without further struggle, to the fullest and most complete belief in the actual existence of a thousand hallucinations. During this time the thoughts were becoming more and more disordered; ideas, between which, apparently, there was not the slightest connection, thrust themselves in, till finally their rapid recurrence, and the loss of that sense of governing the mind which we ordinarily possess, induced the belief that I was the victim of diabolical agency—that some terrible demon had taken possession of my whole intellectual being, and identified himself with every thought, in the same way that a man might direct the physical movements of a child. The feeling of utter powerlessness to check the wild current of thought was complete, and there was a sensation as though, if there had been the ability, the will could not be exercised.

The firmest intentions were forgotten in an instant. There

seemed to be no difference between the idea and the expression of it in words. A moment was long enough to forget whether it had been expressed or not. The sound of persons whispering in the room, brought with it the belief that they were laying some plot. It was not a vague suspicion that they were intending some injury, such as whispers and glances might excite in any one; but everything they had said—the particulars of the whole plot—were present, with the same vividness and overpowering conviction as they always are in true hallucinations.

The *fantasia* had now arrived at its height. It was an hour and a half since the first sensations of excitement and wandering commenced. About the same time passed before it had completely subsided. The mental phenomena in this stage were as remarkable as while the effects were coming on. One after another the delusions disappeared as rapidly as they came; not by any exercise of the gradually returning regularity of thought, but suddenly—with a bound—so that it was surprising to have believed, a moment before, what now appeared so absurd.

The whole time during which there is any perceptible difference from the normal state, is from three to five hours, according to the dose taken. The hemp resembles in its action some other medicines which are erroneously called cumulative. That is, a dose may be taken without producing any perceptible action; and on another occasion, a dose only a grain larger will act violently. Indeed, the effects of this agent seem to be of such a nature, that there is no resting place between its full action and none at all. A delusion, of the truth of which we are only half convinced, would be no delusion at all. Unlike opium, alcohol, and other narcotics of the order *Solanaceæ*, it leaves behind it no mental confusion, headache, or other signs of a direct and powerful action upon the nervous system. The secretions of the alimentary canal, however, remain in an unnatural state for several days, and there is a slight oppression felt in the abdomen, if the dose has been at all large. During all the time of its action, there is a tendency to laugh, in spite of the delusions, which are almost uniformly of an unpleasant character. The feeling of buoyancy of spirits is somewhat the same as is caused by a slight dose of alcoholic stimulant.

Amid all the strange vagaries of the *Haschisch*, the mind preserves the power of taking cognizance of its condition, and to a certain extent of analyzing its operations. The memory of everything said and done is nearly perfect; but of the multitude of thoughts, only those making a more than commonly distinct impression are preserved.

Can this singular substance be put to any useful purpose, to illustrate any of the varied mental phenomena of health and disease? Is it worthy a place in the medical *armamentum*, from its action alone upon the mind?

The great advances made in the philosophy of medicine during the last half century, have been due almost entirely to the devotion with which pathology has been pursued. Instead of the ill-arranged and ill-understood assemblage of symptoms observed with scrupulous care, which went to make up the idea of a disease, we now direct our aim to strip it of everything fortuitous and to fix in the mind the type of the malady—those essential features which are uniformly the same under every variety of circumstances, and about which the more obvious symptoms cluster, like the drapery about a statue. In diseases of the mind, this has not been done: their seat and nature are too deep to be reached by the knife of the morbid anatomist. Esquirol, after a whole life devoted to the study of this subject, and after the most ample opportunities that have ever fallen to the lot of any individual, says, that “pathological anatomy is yet silent as to the seat of madness; it has not yet demonstrated what is the precise alteration in the encephalon which gives rise to this disease.” Nor has greater success obtained in the attempt to explain the relations and analogies of the various forms of insanity. The cause of the latter failure is sufficiently obvious. Theory has taken the place of fact. No competent individual who has experienced insanity in his own person, has written upon the disease. The insane themselves can rarely give a consistent account of their disease, even if they were qualified, by previous study and observation, to take the best advantage of their own mental state. Even our own observation of the disease is rarely complete: the minor degrees do not come under the care of the physician, and it is only when the more severe cases are evident to all, that friends will acknowledge its existence and submit the unfortunate patient to examination. How imperfect would be our ideas of grief, anger, or pain, if we could only observe their outward manifestations, or listen to a description of them by one who had suffered them! And yet this is all, and more than all that we can know of the intimate nature of insanity, of its connections and analogies, unless we have suffered it in our own persons. If we had never felt any of the passions, our diagnosis of them might perhaps be as perfect, and the empirical treatment as successful, as now; but a vagueness would necessarily pervade our mind as to their nature, and we should be liable to continual error in reasoning upon them. Southwood Smith well observes, that the symptom of fever termed *febrile restlessness* cannot be understood by any one who has not experienced it in person.

The most superficial observation of a case of mania, will not fail to show many and strong points of resemblance to that of a person under the influence of a powerful dose of Cannabis Indica. In both there is the same excitement and abruptness of manner, the same rapidity and incoherence of thought, the same false convictions and lesions of the affective faculties. The following de-

scription, by Prichard, of an ordinary case of chronic mania, such as composes the greater number in the wards of every hospital, might apply, without the change of a word, to the condition of a person under the influence of the *Haschisch*. "It is, however, a state of great intellectual weakness, in which none of the operations of the mind are performed with energy or effect. The memory, the judgment, the powers of attention and combination, are so much impaired, that the individual is wholly inadequate to the duties of society, and incapable of any continued conversation; his actions and conduct are without steadiness and consistency, his thoughts are deficient in concentration and coherence."

There is no really important point in which these manifestations differ from the condition produced by the *Haschisch*. There is no error of judgment, no delusion or lesion of the will or moral faculties, which is seen in the former state, but what might take its rise in the latter. In this question, the difference of cause of the mental disturbance might at first sight appear an insuperable objection to reasoning from one condition to the other. But is insanity always produced by the same cause? On the contrary, there is no disease to which the human frame is subject, that acknowledges such a variety. There is hardly a physical or functional lesion of any tissue or organ, but may produce it by its reaction on the nervous system, and it is difficult to say whether the best or worst proclivities of our nature are oftenest regarded as the productive agents of the same mental disease. If opium and tobacco and alcohol may produce, by long use, without any apparent disease, a mental state which deserves the name of insanity, why may not the *fantasia* of hemp receive the same name? What reason, then, is there why we may not rely upon its revelations as so many views of the hidden workings of the spirit, in that gravest of all diseases? If this be allowed, the *Haschisch* may in a degree serve as a key to unlock some at least of the mysteries of mental pathology. Why may we not thus possess a means of studying the disease in question, better than we have of most others? We can apply to it the principles of experimental philosophy, and test it by the best of means upon the best of subjects. The idea of this application of the medicine originated with Dr. Moreau (de Tours), of Paris, a physician of large experience in his specialty, and whose work\* on the subject possesses the highest interest, as presenting many views of insanity and kindred subjects, different from those commonly received.

In the study of insanity by this means, if there is any one fact impressed upon the mind more strongly than another, it is that of the essential unity of the whole psychical nature. It is impossible not to recognize the truth that the ordinary language of meta-

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\* Du Haschisch, et de l'aliénation mentale.

physics is applicable to the explanation of morbid mental phenomena. The popular division into the intellect, the will, the instincts and the moral faculties, though having a show of precision, and absolutely necessary in common language, conveys too much. Such divisions are too distinct and disconnected to be true to nature. The minute organological divisions and hasty generalizations of the phrenologists are only the results of the same principle carried to a greater extent.

[To be concluded next week.]



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DR. JOHN BELL ON THE HASCHISCH OR CANNABIS INDICA.

[Concluded from page 216.]

A FEW words upon each of the kinds of psychical disturbance caused by the *Haschisch* will conduce to the better understanding of its action, and of its relations with the analogous, or precisely similar phenomena of insanity.

Throughout the whole period of its effects, there is a sense of pleasurable excitement. By the French authors who have experimented and written on the subject,\* this feeling is regarded as one of the most marked phenomena of the drug. Doubtless this was the case with them: with myself, it has never been so great as is generally represented. It is true there is a strong tendency to laugh, but it is a laugh in which the feelings participate to a very slight degree. It is the same to whatever subject the thoughts are directed. In delusions of an agreeable or disagreeable character, there is the same smile. It is different entirely from that state of mental excitement, attended with pleasurable emotions, which is met with in the first stages of many cases of insanity. In such instances the sentiments of pleasure are caused by the most sanguine anticipations of success in every wild project. It is a feeling which would be very proper, did not its cause show too plainly the intellectual disturbance which pervades it. There is nothing like this in the effects of the *Haschisch*. The face does not as ordinarily prove a true index to the mind. While the thoughts do not pause long enough upon any subject for the feelings to be touched, the face is covered with smiles. Disagreeable anticipations and a joyful expression of countenance do not seem at all incongruous. It seems to be all on the surface, leaving the depths below unmoved. The condition is much the same as in dreams, when we are often surprised at our own callousness to all impressions of pleasure and pain: when good and bad fortune alight over us without exciting happiness or sorrow. Perhaps up

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\* *Annales Medico-psychologiques—passim.*

ferent temperaments, the action of the drug may be essentially different. My own experience of it has been sufficient to convince me that this sentiment of happiness may be completely lost in the crowd of other phenomena. It would have been hardly worth while to notice so slight a peculiarity, were it not that one of the most interesting of its proposed therapeutic uses is in connection with this property.

It has been proposed by M. Moreau to take advantage of this reputed action, to combat certain varieties of insanity connected with melancholy and depressing delusions. If a series of hallucinations of a pleasing character, or a state of pleasurable excitement, could be produced and kept up for a length of time, the change might become permanent. The morbid chain of thought might be broken, and the mind resume its healthy action upon the withdrawal of the medicine. Used in this way, the drug would seem to hold a middle place between medical agents as ordinarily used, and the moral discipline which is principally relied on at present. This proposed application is original with M. Moreau, but the idea of superseding melancholy by exciting pleasurable emotions, is certainly as old as the time of David, whose harp succeeded in driving the evil spirit out of Saul. Such means, in cases of true insanity, have in practice fallen into utter contempt. Music, *per se*, never has cured an insane patient in our times, or, as a late writer says, "music never cures insanity, except such cases as appear in the comic opera." Music may be, and unquestionably is, of value as one among the diversions and employments which take off the tedium of hospital life, and *pro tanto* occupy the space in the disordered mind, which would otherwise be absorbed in diseased acts and reflections. M. Moreau reports several instances of doubtful cures effected by the medicine, but confesses that his experience of its use is limited. The following cases from his work will illustrate its effects upon the variety of insanity in question. "Two patients suffering under melancholia, after five or six hours experienced a lively excitement, with all the characters of gaiety and sprightliness which we have observed. One especially, tormented by terrors of imagination and melancholy delusions, who had not spoken ten words a day for more than nine months, did not cease to chat and laugh and joke during the whole evening. I rarely found in his words any connection with the ideas which habitually occupied his attention. However, the excitement over, both fell again into their previous condition."

The use of the *Haschisch*, with this view, has not been extensive in this country—not so extensive as it deserves to be. It has been tried, however, in several of the insane hospitals, but the results have not been encouraging. Indeed, in most cases they have been completely null, so that the suspicion has been engendered that it does not possess the physiological action attributed

to it. Nothing could be more unfounded; there is no article in the whole *materia medica* which, according to my observation, is more to be depended upon to induce its peculiar effects. But it must be given in doses much larger than those usually employed, that any effects may be experienced from it. We could hardly expect that cases having their origin in extensive physical disease, can be benefited in this manner. But in functional diseases of the brain, it certainly gives promise of possessing powers more directly useful than any other specific drug of the *materia medica*.

Every one is aware how much our ideas of time depend upon the rapidity of thought, and the degree of attention we give to passing events. While the mind is busily engaged in conversation or reading, we seem to lose all notion of the succession of events; we live in a world of ideas, retaining, however, an intimate sensation of the fact that we are only thinking. In this state we take no note of the passage of time; an hour is compressed into a minute. In dreaming, the mind is just as busily engaged, and yet we may magnify an instant into any conceivable limits. In the state of reverie, the same thing occurs, though to a less marked degree. The fact is familiar to every one that we may be awakened by some noise, and in the interval between sound sleep and complete wakefulness, we may pass through a long imaginary conversation, or an extended series of events, ending with some explosion or catastrophe, which on being completely awake, we are aware is only the noise which has awakened us. Our ideas of time, then, do not depend exclusively upon the succession of mental pictures. They are much more closely connected with the degree to which we identify ourselves with our thoughts. Just in proportion to their vividness and the extent to which they overcome our attention to the fact that we are thinking—not acting, just in such proportion does time correspond to what it would be, were the subject of our thoughts real objective facts. This sensation of the excessive duration of time, is perhaps the most remarkable and obvious of the effects of hemp, and the extent to which it is experienced may be regarded as the best means of regulating the dose. It is never absent, throughout the whole duration of the mental disturbance, and the deception is so complete and so disagreeable, that no one who has taken it need ever be in the slightest doubt as to whether he is experiencing its effects or not. In the higher degrees of its action all definite ideas of time are lost. Past, present and future exist no longer. The whole existence is concentrated in the train of thought we are engaged in. In dreaming, this change in the ideas of time is not unpleasant, for we cannot observe the discrepancy between our present and former sensations. The following case of insanity, where all proper notions of time were lost, is abridged from Moreau. "A young lady, during the first few days of an attack of maniacal excite-

ment, believed that she had no longer any age. She imagined herself to have lived at every historic epoch to which memory carried her. Those about her were reproached with having stolen her measure of time. Her mother was acknowledged as such no longer, for the reason that she could not have a mother younger than herself." Another believed himself to be God, because he had existed from eternity. Under the influence of *Haschisch*, the ideas of time may be regulated by the intellect, and consequently one is never led astray, except when the attention is directed to another subject; while this is the case, the sensation of immense duration of time is continually and intimately present. Without having experienced it, no one can form the slightest idea of its vividness and reality.

The errors in regard to space are dependent for their existence upon those of time, and are of much the same nature. During the existence of the *fantasia*, an object does not appear more distant than under ordinary circumstances. But while the hand is stretched forth to take it, and we are conscious that the movement is executed with ordinary rapidity, such a length of time has passed away, that only the exercise of reflection and the direct evidence of the sense of sight, can convince us that the hand has not moved through a space corresponding to the time it seems to have been in motion.

The deception is never so complete as that in regard to time; a glance of the eye corrects it, but it rules again as soon as the head is turned. It is in this circumstance that insanity differs from the delirium of an ordinary dose of hemp. In the former, and in cases of large doses of the latter, the sense of sight does not correct the delusion. The sensations coming from the eye are overruled by the reality of those having their origin in the imagination. It is only during the occasional lucid moments of *Haschisch* that the judgment can be exercised, or the eye directed to an object to appreciate its circumstances. Not that the muscles are paralyzed, but the will does not put them in motion. As in an ordinary reverie, the vacant stare shows that the mind does not take cognizance of the objects towards which the eyes are directed.

The first effects of it upon the intellectual faculties, are a gradual loss of power to direct the thoughts. The sense which is ever present in mental health, that we are responsible for what passes in our minds, is lost. This loss is never partial as to any single thought. We do not perceive this power to be gradually slipping away so that we can mark each step of its departure, but suddenly, like lightning, it occurs to us that, the moment before, some thought came into the mind by a channel very different from ordinary. To use a well-understood manner of speaking, we have nothing to do with its presence—it came there of itself. In small doses, its

effects are limited to this degree of mental disturbance. If the quantity taken has been larger, these attacks recur oftener and oftener, the experimenter losing and regaining the consciousness of directing the course of thought many times in a minute. When under the highest degree of its action, the glimpses of the fact that our thoughts are not our own, are few in number and momentary in duration. In this state of veritable mania, ideas come and go with a rapidity completely inconceivable in ordinary mental conditions. Some glide through the mind without seeming to make any impression at all; others become realities as perfect as though admitted through the senses. Yet in all this overthrow of the governing power, there is a certain degree of connection in the succession of ideas. But the attention is so slightly concentrated upon even the most vivid of them, that the slightest occurrence, the movement of a hand or a word addressed to us, sweeps them away in an instant. We live in the thought that is uppermost at the time; those which are past are as nothing, and we take no thought of what the future are to be. Intentions formed the moment before, are lost. If we wish to say anything, the chances are equal that it will be forgotten—buried by the succeeding idea. Let one in this state attempt to write, and he will produce a composition similar to what is often seen by those practically acquainted with hospitals for the care of the insane. Broken phrases, words without the least connection, with occasionally a few sentences having some obviously connected ideas at bottom, make a compound highly characteristic.

The conversation is more connected than the writing, for it is better able to keep up with the thoughts. In both there is some connection in the mind of the individual; while one word or part of a sentence is being written, a multitude are gone, and when the pen comes to a stop, it goes on again with the train of thought which is present at the instant, without endeavoring to go back and take up the thread which is lost. In talking, one feels compelled to finish the sentence without an instant's hesitation; if the word which expresses the meaning does not occur, another is substituted for it without reference to its signification. If we hesitate, the train of thought is overwhelmed by the rushing tide of ideas, which never waits for utterance. The connection between successive conceptions, however, is not always perceptible to the individual, even in the slight degree referred to above. A large portion seem to be mere isolated pictures, drawn alike from memory, from imagination and from incidents which happen to be taking place at the time, but all strangely confused and equally transient in the impression they make. This mental state is so similar to many cases of insanity, that it would be difficult, if not impossible, to distinguish them without having recourse to their duration and the causes which produced them. The extreme rapidity and vividness

of thought are absolutely identical with the most observable phenomena of that disease.

Mania is by far the most hopeful species of insanity, in respect to its prognosis, while dementia is the most hopeless. It has been thought that in cases of mental disease, tending to fall into the latter state, the powerful stimulation of the hemp might perhaps arrest the downward course, and place the patient in a state more amenable to treatment, and consequently more hopeful, as regards chances of ultimate cure. With these ideas in view, it has been administered in very heroic doses in all stages of hebetude. But the mind in this condition seems to have completely lost its wonted resiliency: it responds no longer to what were once powerful stimuli. In this state the hemp produces no perceptible effects, in the more advanced stages, and only the slightest change in any. All hopes of benefit resulting from its administration in these cases, have been abandoned by the author, himself, of the proposition—a sure proof of its utter want of any probability of value.

But the most interesting of the effects of the hemp are in connection with the subject of delusions. It is in reference to these that it can be put to the best use in assisting to understand the workings of disease. There are very few cases of insanity but exhibit delusions at some period of their course, and there are not a few persons, ordinarily reputed sane, who are subject to them. A clear understanding of them will conduce, more than anything else, to a full understanding of those mental states which are spoken of under the collective term insanity. Their importance will justify a closer examination than any of the other morbid mental manifestations, caused by the drug of which we are speaking.

Before the time of Esquirol, all the mistakes of madness were included under one term. He saw reason to divide them into two classes—illusions and hallucinations; the first taking their origin chiefly in a disordered condition of the senses, the latter depending exclusively upon intellectual disturbance. These distinctions of the great master have been adopted by most succeeding authors who have written upon the subject. Whether these divisions are founded in nature, and show evidence enough to demand adoption, we shall presently examine. In the mean time, a few words on the origin of hallucinations in addition to what has been said before. They have the same relation to disorders of the intellect that ordinary states of consciousness do to healthy manifestations of that function. There is no word which gives any better idea of the process by which these figments of the brain come to be regarded as facts, than there is of the way in which we come to believe so strongly in our own existence, or the existence of the objects we feel or see. There is certainly not the slightest similarity between hallucinations and ordinary mistakes in regard to the existence of facts. One pre-supposes the exercise of the

memory; the other acts without it and even defies it. The circumstances under which they have their origin are as varied as the hallucinations themselves. Many seem to be purely intellectual, at least the chain which connects them with the external world is too long and complicated to be followed. Some idea, disconnected perhaps, or having a very loose connection with those preceding it, assumes the attributes of reality, and for the future it is an idea no longer, but becomes a fact, and is reasoned and acted upon as such. The great majority of the hallucinations of the insane have this origin. Their fears and suspicions, their strange actions, their pride and humility, are often founded upon some belief which they act upon but do not disclose. Perhaps in many instances it is too vague to be put into words. A thought suggested by another may be adopted in the same way and become a thought and finally a belief of our own. Some sensation of pain or uneasiness in a particular part of the body turns the thoughts in that direction, and forthwith a delusion is established. This is peculiarly apt to be the case in hypochondria, where the stomach being in most cases the peccant organ, is believed to be the abode of some reptile. Esquirol relates cases of a woman suffering under chronic peritonitis, who believed the Pope was holding a council in her belly; of a military officer who had rheumatism in the knee, and believed there was a robber confined in it. These last, however, he gives as instances of his variety of illusions, though in this he is not followed by other writers, who confine themselves exclusively to the five senses.

The idea of illusions is perhaps too strongly fixed, by the ability and influence of writers who have acknowledged their existence, to be easily refuted. There are certainly no such phenomena among all the varieties of psychical disturbance caused by taking the hemp, though there are delusions which if observed in another and judged by the rules laid down by writers on mental pathology, would be considered as striking instances of them. There is never the slightest lesion of the sentient extremities of the nerves, so far as I have experienced. The senses are as perfect as ever, and the information given to the mind is as correct as though the latter were in its natural condition. It is in the disordered state of the psychical system that we must look for the origin of all insane delusions, whether having reference to objects of sense or not. There is no ground for the distinction that has been made between hallucinations and delusions. On this subject Ray\* says, "that the functions of the senses are sometimes greatly perverted, there can be no question; but it needs more evidence than we yet have to prove that such perversions have much if any part in producing these illusions." The principal arguments for the existence of sensory illusions are of this kind: a person may

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\* *Medical Jurisprudence of Insanity.*

have continually before him some vision, as long as his eyes are open, but upon shutting them the delusion disappears. Or it may last during the day and disappear at night, or *vice versa*. It is inferred from such cases, which are sufficiently numerous, that the whole difficulty is in the sentient extremities of the sensory nerves, and that as soon as these cease to act, the object seen disappears. The true explanation of these and similar cases seems to be this. The mere contact of light with the retina gives rise to ideas, perhaps immediately, perhaps through a crowd of others preceding them, which are taken for verities. And all this, while the objects within view are seen as well as ever. But the sensations caused by sight are too feeble and receive too little attention to compete with the vividness of those supplied by the perverted intellect. The facility with which the evidence of the former is passed by, and credence given to the latter, is astonishing and inexplicable to one who has not experienced it in his own person. Esquirol mentions the case of an individual who, under the influence of such a delusion, took a window for a door, walked through it and was precipitated from the third story to the ground. If there had been the slightest doubt in the mind of this person, the uncertainty would have saved him. He must have seen what was before him, but pre-occupied with the notion of the door, the evidence of the eyes made no impression. The hearing is passed by in the same way, but still oftener, for sounds are rarely so continuous as objects of sight. A person under the influence of hemp may carry on a tolerably well-connected conversation, till suddenly he makes some remark which shows that it is made in reference to his own thoughts, rather than to anything which has been said before. He confounds what is passing in his own imagination with the thoughts of others, and consequently attributes to them motives and intentions which they do not possess. His memories of the past and anticipations of the future are drawn from the same inexhaustible fountain. Add to these false premises, false reasoning, warped affections and a disordered will, and the picture of insanity is complete.

Any one who, under the influence of *Cannabis Indica*, has seen what the human mind is capable of becoming, cannot but feel a lively interest in those who are suffering under mental alienation; he cannot but look with hope to it, as a means of more fully comprehending what is the most distressing of finite calamities, and he cannot but think that a substance, the action of which is so powerful and unique, will be found, when fully understood, to possess valuable therapeutic virtues. But this point can only be set at rest by a series of experiments more careful and extended than has yet been made.