

## ON THE SYMPTOMATOLOGY OF ALCOHOLIC BRAIN DISORDERS.

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THE large number of cases of insanity which owe their origin, directly or indirectly, to excessive drinking not only makes the observation of such cases, when massed in a large asylum, comparatively easy, but renders it necessary that an accurate knowledge of the varieties and tendencies of this form of brain disease should be arrived at. In the notes which I am about to record I shall not presume to aim at anything like a complete study of the subject, more especially as Dr. Magnan's excellent work on Alcoholism, translated by Dr. Greenfield, has so recently been placed in the hands of the English public. My motive will be to record, in as simple a manner as possible, some casual observations which have been almost thrust upon me while engaged as an assistant medical officer in asylums which have provided shelter and treatment for the insane alcoholic patients of the densely-populated counties of Middlesex and York. For my own convenience I shall speak of cases of alcoholic brain disorder under two heads. The first class of cases will embrace those of which the prominent characteristic is that they show a temporary interference with, and morbid intensification of, brain function. This class will include *delirium tremens* and *mania e potu*, and the classification is, I think, more accurate than would be the case if I were to speak of these disorders as being simply acute; for though they may be acute in the sense of being severe, they are not acute according to the meaning which the term is generally employed to convey—as running a short and definite course.

The presence in the blood and tissues of a poison which it is necessary to eliminate, and the existence of a delirium which multiplies itself as long as the deterioration of nutrition and the instability of the nerve-centres combine to maintain it, constitute a condition which renders precise limitation of the symptoms and course of the disorder impossible. Without any apparent difference in the constitution of a patient, or in the means by which the mania has been induced, the intense furor which sometimes accompanies alcoholic brain disorder may disappear under treatment during the course of a single night, while under precisely the same appreciable conditions the excitement may in another case continue for weeks. In both cases the etiology, the treatment, and the issue may be the same; but the mania is a factor of so versatile and mobile a character that, though the general and ultimate effect of sedative and nutritive treatment may be safely anticipated, the time which will be required for the production of a good result can never be even approximately determined.

Under the second head I shall speak of cases which are characterised anatomically by an essential variation from the normal structure of the contents of the cranial cavity. This group will embrace cases of chronic alcoholic mania not passing into dementia; cases of dementia of which the principal feature is almost absolute loss of memory for recent events; and cases which either verge upon or merge into general paralysis of the insane.

Under the first head I shall at present refer only to the state which bears the most characteristic name—*mania e potu*—inasmuch as simple alcoholic delirium is a disease with which general practitioners are more familiar than specialists in lunacy. When admitted to asylums, patients suffering from *mania e potu* closely resemble each other even in the details of their history, the nature of their excitement, and in the circumstances of their admission. They have generally undergone an initiatory experience in the police court and the strong cell; are not unfrequently brought to the asylum at night, as if a sudden resolution had been arrived at as to the advisability of regarding the patients as the victims of a disease essentially different from an ordinary attack of delirium

tremens. At times the maniac is firmly secured and accompanied by a body of policemen. His suppressed excitement manifests itself in his expression, which varies in the same individual from abject timidity to sudden and violent emotion and aggressive impulsiveness. The infliction of restraint intensifies the mania in more ways than one. By the employment of force the patient is confirmed in his belief that evil is in store for him, and is driven to bay by the feeling of utter helplessness which, as an external reality, combines with the insane timidity alternating with his outbursts of aggressive excitement. His inability to look upon things in a rational manner places him in a position which corresponds with the experience of an animal in inhaling an anæsthetic. In him the humane motive has the appearance of a purely hostile design, and he experiences all the agony which results from the entertainment of vague notions of coming evil. When relieved from restraint the patient's excitement is almost invariably alleviated, and the administration, forcible if necessary, of liquid nourishment and antacid effervescent, with bismuth and opium, is frequently followed, with comparative speed, by refreshing repose. Sometimes, as I have already said, the effect of concentrated liquid nourishment and sedatives is so marked that one administration is sufficient to produce a comparative removal of the excitement, and the patient begins to be sceptical about the hallucinations which he so recently acted upon with avidity and energy. By a continuation of treatment, and by freedom from restraint, he resumes his former calmness of demeanour, and can not unfrequently fix the exact time of his own recovery by being able to employ his memory in going back, step by step, to a particular hour when reminiscence, first becoming difficult, gradually becomes impossible. He cannot remember the incidents of his excitement, and has only a dim recollection of the nature of his delusions and hallucinations. Unfortunately, however, cases so gratifying in their issue are not often met with. The primary effect of sedation is almost always good, but probably in the middle of the night the patient's sleep becomes less sound, peripheral irritations of a somatic or emotional nature thrust themselves upon the consciousness, and the dreamy thoughts which naturally crowd

into the mind 'twixt sleep and waking again arouse delusions and hallucinations. The patient cannot control his terror or analyse his sensations, and he tries to escape from imaginary foes. If in a single room he may attempt, and sometimes with success, to pass through an iron-guarded ventilator, the aperture of which would seem to the inexperienced to be altogether incapable of allowing the passage of a human body. If in a padded room, he knocks himself about in wild confusion; and if in a dormitory, he generally makes a sudden dart from bed, and rushes wildly forwards in search of some place of safety. But even in such a case the prognosis is rarely unfavourable, and after several sudden outbursts of excitement the maniac—strengthened by the regular administration of digestible and highly-nourishing food, relieved by elimination from the irritating effects of alcohol on the nervous tissues, and soothed by kindly treatment and by such remedies as opium or digitalis—usually regains the use of his reason without showing the slightest trace of dementia; and, after a period of convalescence, is discharged recovered—to resume his ordinary employment, and unfortunately, in too many cases, to resume also the indulgence which compelled him to pass through so trying an ordeal. Though it is evident that in such cases Nature herself performs the greater part of the cure, yet there can be little doubt that some benefit can be obtained by judicious modifications of diet and by the administration of medicines. In the West Riding Asylum I have both in this and other forms of severe mania seen marvellous results produced by the use of a very highly-concentrated essence of fresh meat. This essence is made by placing in a porous covered jar three pounds of fresh meat, free from bone, cut small and without fluid. The jar is placed in the steam-cooking chamber and allowed to remain till the meat is seen to have yielded about a pint of essence. It is salted and simply seasoned with pepper, unless otherwise ordered. With regard to the medical treatment of such cases, I have always placed most reliance on the administration of moderate doses of opium combined with ʒj. or even ʒij. doses of liq. bismuthi. Dr. Magnan, in speaking of such cases as those to which I have just been referring, says, that it is rare in alcoholic mania to have exalted delusions. I

have met only one case of pure mania *e potu* in which there were delusions of exaltation. Dr. Major, of the West Riding Asylum, has kindly permitted me to peruse this case for the purpose of making a few comments upon it. The patient had had several attacks of mania, all occurring during or after bouts of drinking, and the attack which led to his being brought to the asylum seems to have been one of the worst. Before his arrest he had been collecting crowds in the street, making remarks to them about his great ability, and, in gratitude for their patience in listening to him, had been in the habit of supplying them with drink. When taken before the magistrates, he made a witty defence, which occupied about forty minutes. He talked a great deal about his accomplishments, the colleges he had attended, and his numerous dealings with the aristocracy. Both before and after his admission to the asylum his actions and conversation were characterised by considerable wit and humour. In the prison he constructed an effigy of himself, suspended it by the throat from a fastening, and made signs of distress to attract the attention of the warders, who rushed in after he had hidden himself for the purpose of enjoying their consternation at witnessing the apparent suicide of their prisoner. When on the way to the asylum, he asked to be allowed to look at the certificate, intending to secure it, so as to be able to act the part of a relieving-officer and hand over the warder who was conveying him to the asylum. On admission he was very talkative and witty, and tried to get a reputation for knowledge of languages. He spoke in Latin, but when answered in the same tongue was unable to maintain the conversation. He represented himself to have been a captain in the Engineers, and to have bought a public-house for £5000. This patient made a good recovery, and was discharged in about two months.

This is, no doubt, a somewhat uncommon form of alcoholic insanity, inasmuch as in this instance alcoholism seems to have been an exciting cause acting upon a predisposition to well-defined recurrent attacks which were but slightly tinged with the particular influence of the exciting cause. The only delusions of suspicion which he had were against the police-officers who had arrested him. Two points con-

nected with these attacks of mania *e potu* seem worthy of passing notice. The first is, that one frequently meets with cases in which within a comparatively short space of time six or eight, or even more, attacks have occurred in the same individual, from all of which he has recovered without the least trace of consecutive dementia. It appears that if the vessels remain moderately healthy, the mania is due to the actual saturation of the tissues with alcohol, and to the tendency which one series of delusions has to cause the formation of another up to the time when the alcohol has been eliminated, and the excitement subdued by proper nourishment and sedatives. The second point is, that a hereditary and collateral tendency to insanity appears to be more than usually common amongst the victims of mania *e potu*.

In proceeding to speak of the forms of alcoholic insanity in which the presence of some organic change in the cerebral vessels, or the brain substance, is supposed to exist, I have first to mention a form of chronic mania produced by alcoholism, which Dr. Magnan seems to have omitted from his classification. In our English asylums there are numerous cases in which the alcoholic disease manifests itself in the form of recurrent attacks of excitement, generally based upon some delusion of suspicion, or some hallucination of the special senses. Such cases may be of very long duration, and may undergo no change during the greater part of their course. They may commence as uncured cases of mania *e potu*, or they may be the result of a gradually-developing mania arising from the constant abuse of alcoholic stimulants for prolonged periods. That they are characterised by a decided predisposition to insanity is shown by the fact that they sometimes occur in very young patients, in whom the constitutional condition must have favoured the development of the mania. One of the most typical instances I have ever seen was that of a youth, who was about twenty-one years of age, and in whom delusions of suspicion and hallucinations of sight and hearing were developed with great fertility. A leading feature of these cases is that sometimes the patient may be quiescent, tractable, and industrious for a considerable time, unless his delusions are voluntarily or accidentally aroused; but when

they are touched upon, his excitement is extreme. He threatens violence, and seems frequently to be on the point of employing it, but rarely does so. His speech is voluble and vituperative, and his movements agitated and rapid; but he is comparatively coherent, shows no defect of memory, and no other sign of dementia. In rare cases the patient is sullen and intractable, and given to instantaneous outbursts of violence, of which he offers no explanation, and which assume a homicidal or a destructive character. Such a patient is one of the most dangerous of asylum inmates. Cases which manifest the symptoms of chronic alcoholism of the variety under consideration, present a wonderful uniformity in the nature of their delusions. They are essentially delusions of suspicion. The patients imagine that they have been forced to sleep upon damp beds; that poison has been placed in their food; that electricity has been brought to play upon them; that they have been drugged with morphia, dosed with chloroform, or stifled with sulphurous fumes. They are tortured with voices using the most obscene and threatening language, and regard themselves as victims operated upon by hidden agencies, which act with a subtlety greater than that of magnetism or electricity; and though, when their hallucinations are excessively harassing, they are sometimes driven to attempt suicide, yet their mental agitation has little effect upon their bodily nutrition, and they invariably eat well and maintain excellent health.

What is the physiology, so to speak, of these delusions of suspicion? Some consideration of the subject has suggested to me a principle which I think will hold good, and which will suggest the explanation of such delusions in chronic mania from alcoholism. The principle is that in all cases where the brain tissues, while retaining to a considerable extent their integrity of function, do not receive their proper and sufficient supply of nourishment, delusions of suspicion are apt to occur. Take as a typical case the condition of the mental functions in old age. The advanced senile dement has no delusions of suspicion, but the patient in whom brain-wasting has made less progress, and in whom the physiological tendency to decay is supplemented by privation,

shows marked delusional suspicions. He thinks that his friends are "against him;" that they drug his food, lay plots for the subversion of his interests, or long to be free from the responsibility of his maintenance. The pathological condition in such a case is one which is the result of a physiological diminution of cerebral nutrition. The heart's action fails, the vessels lose their elasticity, the cerebral tissues participate in the general diminution of functional activity, and the diminished *a fronte* combines with the diminished *a tergo* force in reducing the supply of blood. To a certain extent the same pathological condition exists in chronic mania from alcohol. The heart's action is often weak, the abdominal organs often fatty, and the cerebral vessels, especially the smaller branches, are atheromatous, tough, and unyielding. A general tendency to connective tissue degeneration not unfrequently leads to increase of the neuroglia, to the detriment of the proper nerve elements. Similarly, where degraded habits have led to anæmia and cerebral irritability, the same symptoms of mania of suspicion occur; and even in simple cerebral exhaustion—as from overwork—timidity, irritability, and suspicion are apt to show themselves as representatives of the mania which might ensue if proper precautions were not taken. Frequently also in the earliest stages of general paralysis, when alteration of character is first observed, ungrounded suspicions of relatives and friends are manifested. The method of production of these delusions of suspicion seems to be that the modifications in the nature and regularity of the nutrient supply to the brain-cells keep them in a state of excitability—in a condition, so to speak, of dissatisfaction. Now, what are the proverbial effects of hunger, regarded as a general condition? Irritability, excitability, a tendency to put the worst interpretation upon men's motives and actions, and a propensity to hallucinations of the special senses. These very symptoms occurring during sound bodily health are evidently due to the state of the brain-centres as modified by want of food and by reflex excitability. Consequently it is natural that an exaggeration of this condition should result from such a habitual existence of mal-nutrition as accompanies the organic



changes consequent upon the prolonged abuse of alcoholic stimulants.

I have spoken of this condition of chronic alcoholic mania as one which remains almost stationary; but it must be remembered that one condition absolutely necessary for the arrest of the progress of such a disease, is abstinence from the stimulation which induced it. It unfortunately happens that in many cases the first signs of the accession of this mania are not regarded, and the alcoholic, scarcely recognised as being in a critical state, continues his excesses. The pauper patient—usually of comparatively low mental capacity and meagre education—when he begins to manifest symptoms of alcoholic mania, soon develops them to such an extent as to render his recognition as a lunatic imperatively necessary. It is different, however, with the professional man, the artist, the journalist, and the intelligent man of business. The working man's animal propensities usually lie near the surface; his mental operations are less highly specialised than those of the man of refinement; consequently alcoholic changes in cerebral nutrition develop in the latter an initiatory series of symptoms which are not present in the former. How often, for instance, one sees a truly brilliant man undergo a series of painful mental changes directly due to excessive and injudicious indulgence in alcohol. The ready writer, the bright and witty talker, the man of natural æsthetic tendencies with a powerful memory and a gift of ready application has the higher mental faculties in constant operation. He is swayed by changing emotions, and the influence of all forms of excitement, whether emotional, social, or alcoholic, is to intensify, for the time being, the activity of his naturally unstable intellect. When brought into contact with others who manifest the same intellectual tendencies, he has a natural pride in the superiority which secures for him the admiration of persons whose judgment he values; and when exhaustion follows effort, he succeeds in stimulating his weakened powers by alcoholic drinks. For a considerable time, perhaps, while the digestive system remains in such a healthy state as to ensure the supply of proper solid nutriment, this course is pursued with an appearance of success, but soon the urgent symptoms of indul-

gence begin to manifest themselves. The mind, unaided by artificial stimulus, becomes barren and unproductive. Sentences are written that appear to have no point, and jokes are uttered which are destitute of humour. The man who was accustomed to write with speed telling criticisms and pointed epigrammatic sentences, has a consciousness that his mind has become incapable of sustained effort, and that his writing is dull and insipid—a feeling which contrasts strongly and painfully with his previous cheering sense of power and fitness. Under the influence of an alcoholic stimulant, he finds that, for a time at least, he can again command his intellect. But the control is only a temporary one, and is followed by a greater sense of exhaustion than otherwise would have been experienced. Memory, not so much for passing events as for facts, passages, and references, which had been readily acquired, begins to become weakened, and the misery resulting from the loss of a reputation for and consciousness of intellectual power supplies a new incentive to excess. Not unfrequently *petit mal* and attacks of simple vertigo ensue, still showing that the most highly-specialised regions are as yet alone affected. At this stage no one could, as yet, be regarded as insane, though as great a change of function has relatively taken place as leads, in the more lowly-organised mind of the pauper, to the display of delusions of suspicion and hallucinations of the senses. After this, however, if alcoholic indulgence is continued, the ordinary symptoms manifest themselves. Irritability passes into suspicion, voices are heard, illusions experienced, and the mind becoming prone to reverie finds for itself a new and insane sphere of existence. Intellectual helplessness and physical changes advance. One limb may become weak, one pupil may dilate, and, if excessive or even moderate drinking is still indulged in, the victim has no other prospect than to end his days in a state of degraded dementia and muscular paralysis from progressive brain-softening.

There is another well-pronounced class of cases which owe their origin to excess in alcoholic drinks, and which possess some interesting features. In this class the patients are generally advanced in life, are not unfrequently women at the menopause, and generally bring with them a history of

excessive drinking suddenly abandoned. The feature of such cases which is sufficiently striking to give character to them is the almost absolute loss of memory for recent events. The patients are cheerful, attentive, understand what is said to them, and show little dementia as far as simple processes of reasoning are concerned, but are absolutely destitute of memory for passing events. When the medical officer makes his visit (perhaps the third in the course of the day), and asks, "Have you seen me before?" the patient asserts that he or she has not; and the constant ineffectual repetition of this question at short intervals, shows that the capability of retaining new impressions has completely disappeared. I do not mean to assert, however, that all such cases are necessarily of alcoholic causation, but only that they are a frequent result of alcoholic excess. In fact, I think that in cases where organic change has been produced in the brain, the nature of the symptoms will be determined, not so much by the character of the exciting cause, as by the physiological functions of the regions diseased. The same complete failure of memory, for instance, as I have just now commented on, is frequently present in specific disease of the brain; and Dr. Major has drawn my attention to a case in which the exciting cause was the shock produced on the patient by the death of her husband. Though the mention of the circumstance of her husband's death always produced in her the most painful emotions, it was on each occasion accepted by her as a novelty. Each time that the lamentable event was mentioned she regarded the information as something she had never heard before, and the grief she manifested was consistent with this remarkable forgetfulness. Still in other respects she was comparatively rational.

In such cases there are not, as a rule, the other ordinary symptoms of dementia. The patients are not dirty in their habits, sometimes employ themselves, are interested in immediate impressions, but retain no recollection of recent experiences. Such cases seem to begin with comparative suddenness, and may terminate—after a considerable interval, in which loss of memory has been the leading symptom—in apoplexy, epilepsy, hemiplegia (from clot or progressive softening), or in

simple brain-wasting. In such cases there are no paroxysms of excitement, but there is a tendency to general weakness of the muscular system, and a cheerful expression and insane laugh, which, however, cannot be confounded with the look of fatuous rapture which adorns the face of the general paralytic.

The last class of cases of alcoholic etiology to which I shall refer, are those which are frequently difficult to diagnose as distinct from general paralysis. They simulate that disease strongly, and may even merge into it. They occur principally in men somewhat beyond the age commonly assigned as the period at which general paralysis manifests itself. In one respect, also, they are peculiar, inasmuch as the history of the cases generally begins with an attack of what would have been formerly described as brain fever. An attack of cerebritis in a man of 48 or 50, who has been much addicted to alcohol, may leave him in a state of almost absolute dementia and partial paralysis. When he attempts to stand, his knees bend under him. He is degraded in his habits, and eats ravenously. He rarely speaks; but when he does, it is usually to express exalted ideas. His manner may be habitually sullen, or constantly cheerful and fatuous. For a few months his symptoms may show no modification, when suddenly he may burst out into an attack of aggressive excitement. He shows symptoms of a new attack of encephalitis, and, though completely helpless, manifests by his conduct the presence in his mind of delusions and hallucinations. His attempts at violence towards those of whom he knows nothing, and whose motives are humane, show the existence of the former, and his rushing or striking at imaginary objects is sufficient evidence that he is actuated by the influence of the latter. Self-mutilation reveals the existence of some important mental aberration, and I have known one instance in which a patient, strongly alcoholic in his history, and whose case presented such features as I have sketched, lacerated his body with his teeth in a most serious manner. In such cases counter-irritation of the shaven scalp, and the internal administration of digitalis or aconite, sometimes produce wonderfully beneficial effects. After each attack of excitement such patients are seen to lose more and more the use of their limbs. They become more and more

demented, and have recurrent attacks of excitement which close observation ascribes to groundless suspicions and half-expressed hallucinations. They are rarely convulsed, and in this respect, as well as in the nature of their delusions and hallucinations, and in the rapidity of the course of the disorder, they show a decided divergence from the typical course pursued by general paralytics. After death they may be found to have brains presenting no meningeal adhesions, and little frontal wasting, but, on the other hand, showing greater evidences of inflammatory action than those which are found in general paralytic brains. The white matter is often firm and glossy, and tinged with all colours, from a delicate pink to a faint cardinal hue. The cortex is, as a rule, fairly thick and deep in colour. The small vessels are generally tough and coarse, and the large vessels atheromatous.

My object in this paper has been to speak of the features of several well-known and other less-known forms of alcoholic brain disease. I have not referred to alcoholic excess as a cause of general paralysis, except in so far as my last class of cases sometimes contains instances which merge into that disease. I consider that the relation which alcoholism bears to general paralysis is capable of a much more scientific explanation than any which has yet been offered. That explanation will, I believe, come from those who combine a knowledge of microscopy with an appreciation of the most recent views regarding cerebral physiology. I have confined myself to a statement of the symptoms of such cases of alcoholic brain disease as special privileges have afforded me the opportunity of studying, and it seems to me that experience points to the fact that excessive or injudicious indulgence in alcoholic drinks causes cerebral irritation, mal-nutrition, and probably inflammation, which, according to certain special conditions, lead to delirium, delusional mania, chronic excitement with exacerbations, and even to loss of memory, muscular prostration, exhaustion, and death.