has been employed when there is difficulty in swallowing after tracheotomy. It was, at the suggestion of Dr. W. Edmunds, in use at the Evelina Hospital in 1880. At the Kinderkrankenhaus in Amsterdam, of 230 children suffering from diphtheria 143 required surgical relief and were operated on ultimately by intubation and tracheotomy without regard to the nature of the case. The total number of recoveries was 51, or 34·7 per cent. Of those tracheotomised 30·3 per cent. recovered, and of those intubated 35·3 recovered. Dr. Ranke states that for Europe, of 413 cases which were intubated in Germany, Austria and Switzerland, 34 per cent. recovered. As to the danger of pressure necrosis from intubation German physicians are not fully agreed. Thiersch declares that erosions are unavoidable when the tube is long retained, but that they are generally superficial. Professor Escherich of Gratz, in a lecture given in 1891, whilst fully acknowledging the utility of intubation, does not consider it to be of equal value with tracheotomy. He deprecated exclusive treatment by either procedure, the character and location of the lesion in each individual case giving correct indications for the choice of operation. He considered that the cases which were suitable for intubation were those of primary diphtheria, limited to the larynx and pharynx, unattended with septic complications, and in which increasing laryngeal stenosis is occurring, with yet intact bronchi and lungs. He considered that intubation was likewise indicated as a temporary procedure in the presence of alarming dyspnoea when the risk of awaiting the completion of a tracheotomy is too great, and that it is also useful to mitigate the death struggle in hopeless cases. Dr. Muratt of the Children's Hospital at Zurich gives a list of 56 cases of intubation, with 21 recoveries, or 37½ per cent. In 18 cases, intubation having failed to give relief, tracheotomy was performed, and only one of these recovered.

(To be continued.)

THE RELATION OF THE ABUSE OF ALCOHOL TO MENTAL DISEASES.

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THE abuse of alcohol in its relation to insanity is often so intimately connected with previous coexisting or subsequent causes of mental disorder that, for its proper consideration, it cannot be entirely separated from them. In considering the relation of the abuse of alcohol to insanity, as suggested by the relation of cause to effect, it may be mentioned that in all text-books on mental disorders alcoholic intemperance has always been included in a list of causes of insanity. It is comparatively of late years, however, that the abuse of alcohol has been recognised to any great extent as the effect or symptom of insanity, and lately this subject has received a great deal of attention. There are abundant statistics to show that the habit of intemperance is often inherited. In all probability it is not a craving for alcohol that characterises this inheritance, but a neurosis the characteristic symptom of which is a want of inhibition or the power of self-control. A condition of perfect self-control under all circumstances is an ideal which can exist only in the imagination. Different people possess such inhibitory power in different degrees, the amount of such self-control depending to a certain extent upon hereditary influence and also to a certain extent upon the training and environment of the individual. A loss of self-control to a greater or less degree is noticeable in all mental diseases. There are certain mental disorders, however, of which its absence or diminution is one of the most characteristic symptoms. These are epilepsy, idiocy, imbecility and hysterical conditions. It is not surprising to find, then, that on the one hand the children of epileptics, idiots, imbeciles and hysterical persons often become addicted to intemperance, and that, on the other hand, the children of drunken parents are often epileptic, idiotic, imbecile or hysterical. More especially is this latter the case when the intemperate habit had been continued through two or more generations. One of the most noticeable effects of a prolonged excessive indulgence in alcohol is the loss or diminution of this inhibitory power. An

individual may therefore by a vicious indulgence in alcohol so paralyse, as it were, his power of self-control that eventually he is really unable to abstain from such abuse when temptation occurs. At the same time that this loss of inhibitory power is being effected there is often established a craving, not for alcoholic liquors as a drink, but for the narcotic effect such liquors possess. A great distinction must be made between habitual drunkards and genuine dipsomaniacs, although at first sight they appear to be very similar. True dipsomania is a distinct nervous disease. It is recurrent, the period between the attacks varying from two to twelve months. As is the case with most other nervous diseases, there are distinct premonitory symptoms immediately preceding the outburst of the attack. These are a general restlessness of mind and body, with sleeplessness and considerable mental depression. The patient then, if unrestrained, drinks till he is intoxicated, falls into a restless sleep, on awakening from which he again drinks to intoxication, and goes on in this way for a week or fortnight. During this time the whole moral being is subordinated to the morbid desire, and no regard whatever is paid to truth, decency, or the ordinary duties of life. The chief differences between this and habitual drunkenness above referred to are: (1) It manifests itself irrespectively of temptation or other external influences; and (2) it is periodic. There is also a great difference as regards the prognosis. It is extremely doubtful whether a dipsomaniac is capable of being cured; the habitual drunkard can be. The length of time required to cure a habitual drunkard varies in proportion to the length of time the habit has been continued and to the extent to which the inhibitory power has been lost in consequence. For the cure of such cases it is necessary that the individual should be confined in an institution for the cure of inebriates and subject himself or herself entirely to the rules and regulations laid down by the authorities of the same. Entire abstinence from intoxicating liquors should be strictly enforced, suitable occupation should be provided and an attempt should be made to gradually build up the moral structure, which has been laid in ruins by the vicious habit. In course of time the power of self-control may be sufficiently re-established to enable the patient to go out into the world and continue to lead the regular life he or she has been accustomed to whilst under surveillance, even when exposed to temptation and adverse influences. In eastern countries, where indulgence in opium is a common habit, it has been observed that if a habit of excessive indulgence in alcohol is contracted the craving for opium ceases; and, *vice versa*, if a habitual drunkard takes to opium-eating the desire for alcohol very soon disappears.

What has been said up to the present refers more particularly to the abuse of alcohol as a result of some disorder of the mind. I will now pass on to consider the part it plays as a cause of insanity. It is possible that in a few cases the abuse of alcohol alone is the cause of mental disease; but in by far the greater number of cases in which intemperance is assigned as a cause of insanity there are other concomitant causes at work. One of the most important of these, no doubt, is hereditary influence. Unfortunately it is often extremely difficult to ascertain with any degree of certainty whether there is hereditary taint or not. This is sometimes due to the ignorance on the subject of the patients themselves or their relatives, but more often to the great reluctance they have to reveal such a family taint. Be this as it may, it is most probable that in most of the cases in which intemperance is the only discoverable cause there is also some inherited neurosis, and for this reason: the number of lunatics in whom intemperance can be considered to play any part at all as a cause of their lunacy is altogether out of proportion to the number of people who are addicted to alcoholic abuse. It will be convenient to consider the action of alcohol as a cause of insanity under the following headings: (1) alcoholic abuse acting directly as a cause of insanity; (2) alcoholic abuse acting indirectly, through its action on the different organs and tissues of the body; (3) alcoholic abuse acting in conjunction with certain moral causes; and (4) alcoholic abuse acting in conjunction with certain physical causes.

1. *Alcoholic abuse acting directly as a cause of insanity.*—In the cases under this heading the mental derangement is due in a primary attack entirely and in subsequent attacks principally to the toxic action of alcohol on the nerve cells. It may be mentioned that such toxic action is in some cases due, to a great extent, to the presence of propyl, butyl and amyl alcohol as impurities. It has been suggested above that in all probability there is in most cases of insanity, in which alcoholic abuse acts directly as a cause, some hereditary

neurosis, though it may be impossible to ascertain definitely the existence of such. This is particularly the case in the mental disorders now under consideration. Probably the nerve cells are hereditarily predisposed to the poisonous action of alcohol. In the first attack the derangement is purely functional and the patient may recover completely, but is more than ever predisposed to the toxic action of alcohol. In second and subsequent attacks the mental derangement is principally functional; but the more numerous the attacks the greater liability is there to organic changes taking place in the cerebro-spinal nerve tissue, until finally the patient does not recover but develops symptoms characteristic of chronic alcoholism which will be referred to under the next heading. Various names have been given to the mental disorders caused by alcohol—viz., “mania a potu,” “delirium tremens,” “delirium ebriosum,” “phrenitis potatorum,” “folie des ivrognes” &c.; for my purpose the terms “acute alcoholism” and “chronic alcoholism” will suffice. Cases of acute alcoholism only are referred to under this heading. Such an attack may be caused by the consumption of a large quantity of alcohol at one time, or by repeated bouts of heavy drinking with intervening periods of temperance, or by a smaller but still excessive quantity acting on a constitution which has been subjected to starvation, prolonged exposure to cold, or debilitating disease. It is not necessary to describe the symptoms which characterise such acute attacks beyond just drawing attention to the suddenness of their onset, their intensity, and the rapidity with which recovery often takes place. Mention may here be made, however, of one or two interesting clinical features to be met with in cases of acute alcoholism. One of the most striking is the great resemblance there is between these cases and those of epileptic furor. Homicidal acts may be, and often are, committed in both these states, and the homicidal act may be one of two kinds. It may be the result of a sudden discharge of motor energy, resulting in most violent acts which are quite purposeless in character, so that it is a matter of chance whether such acts are directed against animate or inanimate objects, or it may be the outcome of delusions of suspicion or persecution, or of hallucinations of sight or hearing &c. It is noteworthy that although expression may be given to the delusion or hallucination at the time of, or immediately after, the homicidal act, when the attack has passed off, whether it be alcoholic or epileptic, the memory is a complete blank with regard to the crime and the delusion or hallucination which gave rise to it. There appears to be in these cases what must be considered a double consciousness. Cases have come under my notice in which after a lucid period of a few weeks immediately succeeding the recovery from the acute attack—a period during which the patient has given no indication of mental aberration—symptoms of subacute mania have suddenly been developed which gradually passed into chronic mania. The following case is an illustration of this.

A man during an attack of acute alcoholism killed a woman with whom he had been living for some years; he had had at least two previous attacks of acute alcoholism. No history of hereditary taint could be discovered. Immediately after the crime he gave expression to delusions as to the fidelity of the woman he lived with. He also had hallucinations of hearing voices saying, “I’ll shoot you”; “I’ll blow your brains out” &c. He was acquitted on the ground of insanity and detained as a criminal lunatic. Whilst awaiting trial in prison he recovered completely from the acute attack and on admission into the asylum he gave no indications of insanity. His memory was a complete blank as regards the circumstances of the crime and was very imperfect and confused with regard to things which occurred on days previously to it. Five weeks after admission into the asylum he developed delusions of persecution and wealth; he said he “was played upon with instruments, which caused him great pain”; that “the asylum belonged to him”; that “he was worth millions” &c. He has remained in this state from that time—a period of five years. There are other cases in which the patient, after recovery from an attack of acute alcoholism, has remained sane for periods varying from a few months to several years and then relapsed into a state of subacute delusional mania, the symptoms of which are very similar to those of the original attack, but less severe. These cases show a great tendency to recur and many of them eventually pass into chronic mania. In all these cases strict temperance, and, in some, total abstinence from alcohol, has been practised during the interval between the attacks, and in

all of them I have been able to obtain hereditary history of insanity, and also of intemperance in many cases.

2. *Alcoholic abuse acting indirectly through its action on the tissues and organs of the body.*—First, with regard to the action of alcohol on nerve tissue, reference has been made above to organic changes which take place after repeated attacks of *acute alcoholism*. These organic changes are much more marked, however, in cases of *chronic alcoholism*. A condition of chronic alcoholism is caused by excessive alcoholic indulgence, which has been continued persistently over a long period of time. The pathological changes are fully described in Dr. Bevan Lewis’ “Text-book of Mental Diseases.” Speaking, generally, they consist chiefly in a considerable increase of connective tissue elements of the brain cortex, together with degeneration of nerve cells, more particularly those of the deep layers. The attack itself may come on very gradually, the first noticeable change being an alteration in the affective functions, which soon become so marked as to exhibit a sense of suspicion against those with whom the patient is in daily contact. At other times the attack is sudden in onset and follows immediately upon a freer indulgence in alcohol than usual. Distinct delusions of suspicion and persecution are soon developed, accompanied by hallucinations of one or more of the special senses. At first these are unstable, constantly changing and intermittent; and as long as this is the case there is hope of recovery. In many cases the delusions and hallucinations become fixed and constant, when recovery seldom, if ever, takes place, the patient gradually passing into a state of dementia. In chronic cases there are often superadded to the delusions of suspicion and persecution delusions of importance, grandeur and wealth; and these, together with certain paralytic symptoms, muscular tremors &c., cause such cases to present a great similarity to general paralysis of the insane. In these cases of chronic alcoholism homicidal acts are also common, prompted by the delusions of persecution, hallucinations &c.; but there is this great difference between these acts and similar ones committed by acute alcoholics that they never have the purposeless character which some of the latter have, and the patient’s memory is always complete regarding the circumstances of the crime which he or she attempts to justify. Next, as to alcoholic abuse as a cause of insanity through its action on the viscera. A long-continued excessive indulgence in alcohol no doubt causes pathological changes in all the organs and tissues of the body. Some of these changes interfere with the physical health only of the individual; others often become intimately related with certain mental derangements. Of these latter, changes in the stomach and liver are most noticeable, and, although they may be caused by alcoholic excess of any kind, the consumption of large quantities of spirits is especially apt to induce them, more particularly if taken raw or with only a small quantity of water. The mental diseases most generally associated with these gastric and hepatic changes are hypochondriasis and hypochondriacal melancholia—really the same disease, the latter being an advanced stage of the former. Now, although hypochondriasis may be, and often is, unassociated with any organic disease whatever, in the majority of cases disease of one or more of the viscera is present and the viscera most often affected are the stomach and liver. It is not necessary to enter in detail into the anatomical changes to be found in the stomach and liver in these cases. They partake generally of a great increase in the fibrous tissue of the organs and a degeneration of the glandular elements. It is very common to find hereditary history of insanity in such cases, and the mental aberration is probably due to the more or less constant excitation of the hereditarily unstable nervous system by abnormal afferent nerve currents received from the nerve plexus, which is so intimately connected with these organs and which is composed of minute branches of the vagi and sympathetic nerves. Excessive alcoholic indulgence has also a very important and definite effect upon the bloodvessels. By its direct irritating action on their lining membrane, by altering the chemical constituents of the blood, by its interference with the vaso-motor nervous control, and, in consequence of the latter, by bringing about sudden changes in the blood tension and the resulting strain on the vessel, it ultimately causes those atheromatous changes to which the bloodvessels of the brain are particularly prone. Atheroma in itself is not necessarily pathological; it is one of those changes which occur in the process of physiological decay which accompanies old age. Pathological atheroma may occur at almost any age.

after adolescence and is often caused by excessive alcoholic indulgence. *A priori*, one would expect to find that the symptoms of premature senility induced by alcoholic intemperance would be similar to those which are met with in cases of physiological senility, and, to a certain extent, this is so; that is to say, the symptoms which are dependent upon the alteration in the brain tissue, due to the atheromatous condition of the bloodvessels, are the same. But in the case of premature senility induced by alcohol there are, in addition to such symptoms, others which are dependent upon the direct action of alcohol on the nerve tissues. Atheroma of the bloodvessels of the brain may result (1) in atrophy of the brain, and (2) in softening of the brain. Atrophy of the brain is due to insufficient supply of blood, consequent upon the diminished lumen of the vessel, and upon the destruction of the elasticity of its coats. Softening of the brain is due to the blood supply being entirely cut off, by the formation of a thrombus in the vessel. The symptoms of the latter are practically an exaggeration of those of the former and partake of the nature of a general mental enfeeblement, varying in degree between partial and complete dementia. These symptoms are, as a rule, gradual in onset, and in some cases are the only ones to be met with. In other cases, in addition to these symptoms, there are those of mania or melancholia, consequent upon the action of alcohol on the nerve tissues themselves. The latter symptoms are usually sudden in onset and often recur again and again.

3. *Alcoholic abuse acting in conjunction with moral or physical causes.*—Strictly speaking, perhaps it is incorrect to speak of these two causes acting in conjunction with one another, but rather in relation of cause to effect. They, however, act and react on one another to so great an extent—the one sometimes being the cause, sometimes the effect, of the other—that the effects of both are combined in the causation of the ultimate result. For example, it must have been everyone's experience to have met with cases in which the mental depression caused by business anxieties, pecuniary difficulties, loss of relatives and friends or mental worry of other kinds has led to the habit of the excessive use of stimulants for the purpose of relieving temporarily such mental depression. Such relief, however, is but temporary; and when its effects have passed off the mind is more depressed than before, the result being that relief is again sought in alcoholic stimulation and the habit becomes confirmed. On the other hand, there are cases in which intemperate habits lead to ruin in business, alienation from friends and relatives, loss of self-respect and the mental disquietude consequent upon these. From a clinical point of view there is a difference in the type of insanity in these two classes of cases. In those cases in which the mental depression has led to a habit of intemperance, the symptoms are as a rule those of delusional mania and the delusions often lead to acts of violence. In those cases in which the mental depression has followed upon alcoholic excess and its results the symptoms are as a rule those of melancholia. In such cases acts of suicide and homicide are common and are altruistic in character.

4. *Alcoholic abuse acting in association with certain physical causes: (1) sunstroke, and (2) injury to the head.*—Although in many cases the recovery from sunstroke is so complete that no after effects are noticeable, yet in the majority of severe cases more or less distinct nervous symptoms, such as impairment of memory, nervous irritability, partial paralyses, epilepsy &c., remain permanent for the remainder of the patient's life. The pathology of sunstroke is at present not very definite, but, whatever it may be, there can be no doubt that it leaves a predisposition to insanity, and indeed in some cases it must be considered to be the sole cause of the mental disorder. One of the most common and noticeable changes in persons who have suffered from sunstroke is their extreme susceptibility to the effects of alcohol, and as a result of this a comparatively slight over-indulgence in it is often the exciting cause of insanity in them. Clinically, cases of this kind resemble in every respect cases of acute alcoholism. The effect of injuries to the head in their relation to alcoholic intemperance and insanity is practically the same as that of sunstroke; that is to say, there is often after injury to the head an extreme susceptibility to the effects of alcohol, so that a comparatively small quantity will cause an attack of acute maniacal excitement in every way similar to an attack of acute alcoholism. In many cases also there is a great change in the manner in which the emotions are affected in the early stages of intoxication; for example, one who formerly became hilarious and jolly under the effects of alcohol will, after having received an injury to

the head, become quarrelsome and pugnacious under its effects.

The following statistics bear upon the whole subject under consideration. During the ten years ending Dec. 31st, 1892, there were admitted into Broadmoor Asylum 325 criminal lunatics. In the case of 86, or 26.46 per cent., of these alcoholic intemperance was assigned as a cause of their insanity. Of these 86, 30, or 34.88 per cent., had hereditary history of insanity, and 13, or 15.11 per cent., had hereditary history of intemperance. With regard to other causes in association with intemperance, domestic trouble, adverse circumstances, mental worry &c. were assigned as a cause in 14 cases, or 16.27 per cent. Sunstroke was assigned as a cause in 10 cases, or 11.62 per cent. Injury to the head was assigned as a cause in 9 cases, or 10.46 per cent. Previous attack was assigned as a cause in 20 cases, or 23.25 per cent.; of these, alcoholic intemperance was known to be the cause in 15 out of the 20 cases.

EXCISION OF SPINA BIFIDA.

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IN 1885 I reported at a meeting of the London Clinical Society a series of cases of spina bifida treated by excision of the sac, which treatment I advocated as being applicable to the greater number of cases calling for active interference. At the same time I showed patients who had been treated by this method. Attention was drawn to the following points:

1. The principle of closing the meninges by bringing together two serous surfaces, as in peritoneal surgery, and superimposing separate skin flaps, the meningeal and skin lines of suture not being opposite. 2. The great importance of observing strict antiseptic precautions, as a septic condition would probably end in the same way as these cases usually do when they spontaneously ulcerate—viz., by meningitis and convulsions. 3. The success attending the plastic operation in cases which are absolutely not amenable to any other form of treatment—e.g., when the coverings are thin or the opening into the spinal canal is large. At the same time I proposed the following classification: (1) Where an operation should not be done; (2) where an operation is not called for; and (3) where an operation should be performed.

CLASS 1.—Where an operation should not be done:

1. Where the deformity is very extensive, as in fissure of the whole or a considerable portion of the vertebral canal. 2. Where there is complete paraplegia. 3. Where the sac is large, the fissure extensive and the coverings are excessively thin quite to the edge of the tumour and no skin can be obtained to cover the meninges. But that such extreme cases may stand a chance of cure is proved by several cases successfully treated.

CLASS 2.—Nothing need be done where the sac is small and the coverings are so dense and firm as to form a good pad over the opening in the spinal column.

CLASS 3.—Where some operation should be done: 1. Where the sac only communicates with the spinal canal by means of a small opening. Here it is a simple matter to dissect off the skin, expose the neck of the sac, ligature it by means of one circular ligature and cut off the redundant meninges, bringing the skin over so as to have the line of skin sutures quite at the side away from the pedicle. 2. Where the sac has a good skin cover and communicates with the spinal canal by a large opening it is quite easy to carefully excise it and close the meninges, placing if possible the line of skin sutures away from the meningeal line of union. 3. Where the coverings are excessively thin quite to the edge of the tumour the operation is more difficult and uncertain, as the skin can only be obtained by a process of sliding from the contiguous parts and the tension necessarily present is not conducive to healing. 4. Where the spinal cord or the nerves are blended with the sac—a condition which cannot often be diagnosed until the dissection of the skin from the meninges is made—I have excised portions of the redundant meninges from between the nerves, replacing the nervous structures in the spinal canal and covering by a flap of skin; or, if this cannot be done, the membranes may be punctured, the collapsed sac with the nervous structures intact be placed in the canal, and the skin