

solution, the strength in which it is usually dispensed. This should be given deep into a muscle whose wide network of vessels, Meltzer has shown, absorbs almost as rapidly as a vein.

Next, the abdomen should be massaged and pressure brought to bear on it, for the mechanical effect is to squeeze the blood from the vessels along into the veins and toward the heart.

Another effectual way of stimulating the splanchnic vessels is to give an enteroclysis of hot saline solution and hot black coffee. It should be hot, not lukewarm, should be at 110 to 115 F. The heat causes contraction of the splanchnic vessels and raises the column of blood in the vessels of the general circulation and forwards their contents into the veins, while the coffee acts on the heart and vasomotor center if it is capable of responding.

Another drug directed toward the vasomotor center is camphor 5 grains in 10 per cent. solution in olive oil, or caffeine 3 to 5 grains hypodermically as a soluble double salt of caffeine and sodium salicylate or benzoate.

Strychnin may be tried in doses of 1/20 grain hypodermically.

For the heart, more important than caffeine or camphor is the intravenous use of strophanthin.

Digitalis in other preparations acting more slowly may be added to sustain the circulation.

Hypodermoclysis or a saline infusion may be of value in these emergencies.

One of the most difficult items in the treatment of endocarditis and myocarditis is the management of convalescence.

No patient should be allowed to get up until every symptom of cardiac insufficiency has disappeared and he is free from fever. Moreover, he should not be allowed up until some study has been made of his cardiac reserve.

I cannot improve on Forchheimer's precautions, which I quote literally:

I usually begin with a massage and resistance movements, applied in the mildest possible way at first and then gradually increased; the condition of the pulse as to regularity, rate and tension being noted before and after manipulation. When the proper reaction takes place the passive exercises are increased in force and duration. . . . During the first week the patient has been allowed to sit up in bed, first for a short time, then longer and longer, until only the normal change in pulse-rate is noted. After a week of treatment, sometimes sooner, sometimes later, the patient is allowed to leave his bed and sit up in a chair by the side of the bed. The normal reaction of the pulse may be determined here by its frequency; if an increase of about 20 beats per minute is produced, it must be looked on as an abnormal reaction.

After he has sat up in a chair, the time of sitting up being gradually increased, he is allowed to walk; first short distances, then longer and longer, being finally permitted to leave the room. Then he may be permitted to walk down stairs, to go out for a drive and finally to walk up stairs.

These rules are excellent and it is step by step that the patient has to be followed and observed. As the heart regains strength, it needs exercise, but always under observation until it demonstrates its improvement under the new test.

Change of air and surroundings may help to hasten convalescence.

Fresh air, an abundance of good food and good cheer leave little for medicines. Tonics are usually superfluous under such circumstances and the red cells take care of themselves, but if the ideal cannot be attained, iron in the shape of Bland's pills, 5 grains three times a

day, with or without a little arsenic in the shape of arsenous acid 1/40 grain three times a day, which can be combined with the iron, or as Fowler's solution 3 to 6 minims three times a day.

Strychnin 1/60 to 1/30 grain, and small doses of quinin, 1 grain three times a day, are credited with strengthening effects.

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RELATIONSHIP OF DRUG ADDICTIONS, PARTICULARLY ALCOHOLISM, TO NERVOUS AND MENTAL DISEASES

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Drug addiction is frequently associated with lesions of the cerebrospinal system as cause or effect. It is comparatively simple to recognize many of the pathologic conditions resulting from drug addiction; but it is difficult to clear up the obscure etiology usually lying back of the addiction itself. Outside of cases manifestly artificially induced, it is rare to find an instance of drug habit which is not engrafted on underlying neuropathologic soil. Among artificially induced cases may be cited those of persons who have blundered into the habit through taking alcohol as a tonic, or as a hypnotic, or as a sedative in dysmenorrhea, or through the use of morphin to relieve pain such as that incident on gall-stone colic or neuralgia. In this class also are those cases induced through social customs and prejudices, such as the custom of treating; that of giving young children alcoholic beverages in the belief that such will make them healthy, large and strong, and the wide-spread custom among the working classes of taking alcohol in the belief that it gives muscular endurance or supplies bodily warmth. But in those cases not artificially induced it is difficult to trace the etiology because of the part such factors as heredity or environment may or may not play in the neuropathologic condition. Alcoholism, or other drug addiction, in the ancestry does not necessarily produce a similar condition in the children, but it is probable that this, as is the case in tuberculosis, syphilis, cancer, etc., implants in the offspring a less resisting constitution which proves to be a ready soil for certain neuroses with which drug addiction seems especially likely to become associated. We cannot always say that a neurotic constitution is the result of heredity even when the ancestry has been such as to point to that conclusion; for often the children of alcoholics and other drug addicts are so insufficiently nourished during childhood, and are reared in such unhappy and such unhygienic homes as to endow them with unstable nervous constitutions, even though the parents may not have been the subjects of such addictions. A factor which I believe may figure largely in evolving the unstable, the unfit, among whom drug habits abound, is the wide-spread use, during infancy, of opium-containing and other narcotic-compounded soothing-syrups.

ALCOHOLISM AS A CAUSE

1. As a cause alcoholism, the conspicuous example of drug addiction, may be associated with forms of neuritis affecting many or all of the *peripheral* nerves (alcoholic

multiple neuritis). But there are infinite gradations of this neuritis from slight paresthesias up through the severe forms in which wrist- and ankle-drop may figure, to that in which cranial nerve or cerebral involvement may be found. I digress here to say that we often do not sufficiently emphasize the various paresthesias with which we are familiar; when no more serious symptoms arise we are likely to look on them as of little consequence; yet, when a neuritis develops we do not hesitate to point to them as having represented its prodromal stage. By looking on these paresthesias, then, as at least indicative of an especially vulnerable nervous system, it may be possible to avoid more serious subsequent involvement. At times, as in certain eczemas, acnes, and some skin infections (often induced by scratching), it is difficult to determine whether the irritation is due solely to inflammation of the nerve terminals: there may be inflammation of the skin emunctories through its effort to eliminate toxins from the system. As an illustration of the action of a toxin on nerve terminals and skin, I recall a recent case of fatal acute exfoliating dermatitis apparently induced in a neurotic individual by a dose of wood alcohol. We are accustomed to think only of surface perversions of sensation such as numbness, prickling, formication, etc., as constituting the paresthesias; but a condition often exists in the internal organs which it is safe to classify as equally indicative of paresthetic states. An example in the alcoholic is that peculiar unsatisfied sensation in pharynx, gullet and stomach which early expresses itself in a desire for some hot, burning substance. A further development of this paresthetic state reveals itself in the cough noticeably characteristic of the alcoholic, having its origin commonly in an irritation of the nerve terminals of the pharynx or stomach. The hissing, buzzing, crackling noises so distressing to the chronic alcoholic may at times be expressive of paresthesias which often are an important factor in the formation of hallucinatory experiences (persecuting voices) which in turn may give rise to morbid mental states.

2. Alcoholism may be causally associated with lesions of the *cranial* nerves, with or without general neuritis, instances of which effect may be seen in optic atrophy—especially produced by methyl alcohol—trigeminal neuralgia, rarely peripheral facial palsy; disorders of taste and smell, and tremulous tongue, all pointing to cranial nerve involvement. Some authors believe that sudden death in alcoholics is at times produced by inflammation of the vagus.

3. Alcoholism may be associated as a cause with *cortical* involvement, with or without demonstrable peripheral change. This condition may be observed in the several forms of delirium tremens, in alcoholic amnesias and automatisms, in alcoholic epilepsy, hallucinosis, dementia, and also in alcoholic “wet brain.”

4. Alcoholism may be causally associated with both *peripheral* and *central* nerve involvement seen in Korsakoff's psychosis and alcoholic pseudoparalysis. In the former we usually find neuritis in the extremities along with impairment of the mental faculties, manifested typically in loss of memory for recent events, confabulation, and disorientation. In pseudoparesis, produced only by alcohol, there is peripheral and central involvement of such nature as to produce a facsimile of the picture seen in true or general paresis.

5. Alcoholism may causally display its effects chiefly on the *cord*, giving rise to pseudo-tabes, at times resembling very closely tabes of specific origin.

6. Alcoholism is associated as a cause with involvement of the *higher cerebral centers*. This is true in all drug addicts. Such involvement exists side by side with the lesions already mentioned as well as when they are not present.

“Even the smallest quantities of alcohol tend to lessen the activity of the brain, the drug appearing to act most strongly, and therefore in the smallest quantities, on the most recently acquired faculties, to annihilate those qualities which have been built up through education and experience, the power of self control and the sense of responsibility.”

In 1900, Kraepelin and Dr. Kürz found by experiment that moderate daily drinking reduced the rapidity with which both habitual and free association of ideas were formed in the mind. In the case of the latter the retardation was the more marked. The same experimenters found the memory to be greatly retarded. A. Smith obtained like results in twenty-seven experiments.

“Even in small doses alcohol exercises a paralytic action on the higher psychic processes. Inhibition in its more complex and elevated manifestations—judgment, modesty, reserve, shame and prudence—becomes weakened or suspended. Action follows thought with greater promptness and less deliberation. The tipsy man, instead of carrying out in an orderly manner a program suited to his true character, becomes the passive and pliable sport of every chance impression that happens to affect his consciousness.”

An example of perverted judgment seen every day in the alcoholic wards is the peculiar suspicion with which the alcoholic regards everyone who approaches him. He doubts the disinterestedness of his physician, attributing anything the latter may wish to do for him to selfish motives or to some plot on the part of the victim's family. It is characteristic of the alcoholic impairment of judgment that the patient shows indifference to his own diseased condition and doubts the significance of glaring pathologic symptoms. A nephritic, when told of the condition of his urine, will say: “That's nothing; you find that in everybody.” He will refuse to regard seriously tabetic pains, or he will treat lightly, refusing to take medicine, a condition in which the legs are enormously edematous. I have had chronic alcoholics of a high order of intellect suddenly confronted by the necessity of abstinence on account of intercurrent disease, such as tuberculosis; and these habitués, after their condition was cleared up, have been amazed at their former blindness in thinking they could do their best when under the influence of alcohol.

In the beginning of this paper I stated that it was comparatively simple to recognize much of the pathology resulting from drug addiction, especially with alcoholism as the cause. We have cited instances of such pathology expressed in the brain and nervous system. There were also mentioned factors, social customs, heredity, etc., which, in my opinion, lead to drug addiction as an effect.

ALCOHOLISM AS AN EFFECT

In dealing with the pathologic conditions associated with addiction to drugs as a cause (1, 2, 3, 4, etc.), we were able to grade results from the least marked nerve involvement to the most serious, in which the brain and its highest processes participate in the diseased conditions. It was pictured so merely for purposes of clear-

1. Cushny: Pharmacology and Therapeutics, Philadelphia, 1910, Lea & Febiger, Ed. 5, p. 133.

2. Tausz: Text-Book of Mental Diseases, Rebman Co., New York, 1906, p. 314.

ness, as all grades and combinations of the above syndromes may exist, if not simultaneously at least successively. In the following, in which the conditions are reversed, that is, in which the addiction itself is an effect of some usually obscure cause, the gradation cannot be so definitely represented.

As an effect the addiction to alcohol, morphin or other narcotic drug may be associated with various neuroses and psychoses (neuralgias, ties, obsessions, etc.). The fact that a neuralgic pain long continued may lead to the formation of a drug habit, especially morphinism, is well known; a tie often ceases temporarily while the sufferer is under the influence of a narcotic; and fears and abulias may disappear under the same influence. One of my patients, a successful business man, has had to retire from business owing to an obsession which, through fear of his ability to put through a business deal, compelled him to resort to morphin before every important transaction, in order to overcome his timidity.

Addiction to drugs, noticeably alcoholism, is frequently associated as an effect with that peculiar, though common, constitutional make-up known as cyclothymia. This is an emotional disorder and expresses itself in periods of depression—dysthymia, alternating with periods of excitation—hyperthymia. Between these phases such individuals often experience normal periods. The habitué of this class is very often met with. Such persons have resorted to their drug as a solace during the depression; as an outlet during the period of exuberance. Jelliffe says:³

"The cyclothymic constitution . . . manifests itself very frequently under the guise of periodic alcoholic debauches. . . . The alcohol excesses are apt to be fairly short in duration and are frequently interspersed with periods of productive energy, often in the gifted, of a very high order of efficiency. . . . It is recognized by many at the present time that dipsomania—or periodic drunkenness—is not by any means always an epileptic equivalent. . . . On the other hand, periodic drunkenness is a common cyclothymic manifestation, as well as a frequent complication in a fully developed manic-depressive psychosis. I have observed it in both the cyclothymic depressed and the cyclothymic excited persons, though rarely in the same individual."

The application of the term "periodic drunkenness" must be limited when applied to the foregoing class. If by "periodic drunkenness" we mean the condition in those individuals who are abstinent between sprees, the debauch may be attributed to the cyclothymic constitution; but if the periodic drunkenness applies to those chronic alcoholics who drink daily, coming up periodically to a spree, the debauch is to be attributed to the cumulative toxic effect of alcohol on the system. It is well also not to confuse or use synonymously the terms "periodic drunkenness" and "dipsomania." Dipsomania is a very rare condition, and a more desperate one than periodic drunkenness. It entirely transcends the will of its victim, thus lying in the realm of true insanity. Tanzi says that it manifests itself periodically in a morbid craving which is an uncontrollable impulse.

We find alcoholism a result of involutionary processes. It "is generally the effort of the individual to maintain his productive power by recourse to artificial stimulation" (Neff). It is noticeable that a previous moderate indulgence in alcohol sometimes at this period becomes excessive. Curiously, however, we find persons in whom the indulgence has previously been excessive who at the

involutionary period entirely cease to have a desire for alcohol.

Drug addiction may be associated as an effect with manic-depressive insanity, having been begun in the depressive stage as an effort to counteract the melancholy, or bodily depression. On the other hand, the maniacal or excited phase may be the starting-point in the habit formation as an effort to procure quiet or sleep.

Drug addiction, particularly alcoholism, is relatively frequently associated, as an effect, with the early stages of dementia præcox—especially so in young men in a city environment. This does not result from a craving for narcotics. The individual is attracted toward the gaiety of brilliantly-lighted cafés, saloons and the red-light district, and his habit formation is an incident accompanying his indulgence of whimsical fancies beyond his control.

Drug addiction is often an effect associated with hypomania, in itself characterized by "an exuberance of thought, speech and action which resembles that of the first degree of drunkenness" (Tanzi). This disease is likely to lead its victim, at times through his insistent sociability, at times through the depression following the characteristic "stress of occupation," to alcoholism or morphinism.

Alcoholism especially may be a result of a predisposition caused by the deteriorating processes of general paresis. More frequently, however, we find the alcoholism already existing and more freely indulged in as the specific disease advances, thus adding an agent highly favorable to the action of the poison of syphilis in the production of paresis. The finely organized cortical cells and nerve tissue cannot successfully withstand the double toxicity. In discussing the frequent association of alcohol, syphilis and general paresis, Dr. August Hoch⁴ lays great emphasis on the fact that alcohol is an important cause in the production of brain diseases in which there is syphilis.

In the study of drug addictions one soon comes to see that there are many conditions in which the addiction may figure both as cause and as effect. Alcoholism in the ascendants may establish disease of brain or nervous system and this in turn be the determining factor in the etiology of alcoholism or other drug addiction in the descendants. In the individual a drug habit once formed establishes organic and mental changes leading to tolerance and finally craving, making a continuance of the indulgence necessary to preserve his comfort against the ever-increasing distress of withdrawal.

It is well known that narcotic drugs may obscure the clinical picture and symptom-complex of diseases generally. The obscuring of the signs and symptoms of appendicitis by morphin is a familiar example. This obscuring is likewise true in nervous and mental diseases. Cases are not uncommon in which the symptoms of the early exuberant grandiose stage of general paresis have been overlooked because of the superficial likeness of such symptoms to those of alcoholism. This is true as well at times when depression characterizes early paresis. I recall the case of an alcoholic in whom very definite pains of tabes asserted themselves on the withdrawal of his drug; and the case of a morphinist whose neuritis did not reveal the symptom of pain until her morphin was stopped, although definite signs of a severe neuritis had been in evidence for several weeks, though entirely overlooked.

3. Am. Jour. Insan., April, 1911.

4. State Hosp. Bull., New York, September, 1909, p. 7.

In this paper I have considered many of the more common nerve and brain conditions in which drug addiction plays a part as cause or as effect. The isolated cases, however, in which we find drug addiction associated are very numerous. This is conspicuously so in those cases in whom some perverted metabolism or toxic secretion is the exciting cause. Recently the case of a patient brought to the hospital for treatment for alcoholism had been diagnosed as neurasthenia; the woman had long been intolerantly looked on as a perverse habitué, her complaints set down as purely psychic. Though the psychic disease was a prominent feature, it was clearly due to perverted thyroid functioning; and alcohol had been resorted to because of the relief it afforded from the distressing mental and nervous symptoms characteristic of hyperthyroidism.

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THE NON-SURGICAL TREATMENT OF CHRONICALLY DISCHARGING EARS

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What to do for his patients with chronic discharging ears has been long a troublesome question to the general practitioner. He has always among his clientele a number of these cases, which have persisted for years, some of them despite the most earnest efforts to bring about a cure.

To have an ear attended with a constant secretion of purulent matter presenting at the external auditory meatus, especially if it be foul-smelling, is a disgusting affliction, from which the unhappy subject naturally yearns to be relieved. But the esthetic discomfort, though great, is the least of the disadvantages of such a condition.

A continually suppurating ear means the persistence of a destructive process going on in a physiologically important portion of the auditory organ. The middle ear cavity is essentially concerned in sound transmission, and it is impossible for it to be long the seat of a suppurative process without serious impairment of the hearing function.

In the course of time, if the process is not checked, the drum-membrane will gradually slough away and become almost or completely destroyed. The little ossicles, denuded of their thin layer of membrane, fall a ready prey to necrosis and are exfoliated, and sooner or later other important structures are involved in the destructive process. The hearing must surely, though slowly, grow worse if the disease is unchecked, and eventually may become lost. In addition to this actually present evil, there is in every case of suppurative otitis, a large chance of something more serious happening, because of an extension of the infection to neighboring vital organs.

It is unnecessary, I am sure, to have to insist on the seriousness of suppurative otitis to intelligent practitioners of the present day, although it is only recently that they came to realize the full measure of the dangerous possibilities of such an affection. The fact that life-insurance companies, basing their proposition on cold statistics, exclude from risks subjects of chronic discharging ears, is significant enough.

The patients generally look sickly and have muddy complexions, no doubt due to the absorption of bacterial toxins from the pus pent up in the pneumatic cavities. They are subject to frequent headaches from exacerbations of the disease, often with some involvement of the mastoid cells. But worst of all, they are in imminent danger of grave, it may be fatal, intracranial complications, due directly to an extension of the process. Most brain abscesses are known to come from this cause. Lateral sinus thrombosis is an even more frequently fatal result, and meningitis, septicemia, labyrinthitis, epidural abscess and facial paralysis are all possibilities seriously to be feared.

It is because of these dangers and disadvantages attending a suppurative otitis that many otologists who, from their experiences with the fatal consequences possible, are naturally more impressed than others with the gravity of the situation, have advocated radical surgery in such cases. Unfortunately the only operation which we can offer with a promise of almost certain success is one that is extremely radical. The milder or conservative measures, such as ossiclectomy, which are sometimes practiced, have been generally disappointing. To effect a certain cure it has been found necessary not only to remove the drum membrane and all the contents of the tympanic cavity, including the ossicles, but also to enter the antrum and the attic and throw all these into one by breaking down the partitions which lie between, concluding with the performance of a proper plastic operation on the auricle to form a new meatus leading to the cavity which has been thus artificially created.

An operation of this kind is one that the thoughtful and conscientious surgeon hesitates to advocate except for the most positive indications. At any rate, even when the operation seems for the best of reasons to be positively indicated, the wisest plan is not to intervene until conservative measures have been exhausted, and the patient has been given the benefit of a course of medical treatment.

It is quite evident that in many cases surgical treatment is out of the question, because of the personal attitude of the patient, and we must content ourselves with doing the best that can be done in other ways. On the other hand, there are cases, of course, in which it is plain to see from the beginning that no kind or amount of medical treatment alone can be successful, cases, for instance, dependent on chronic mastoiditis, the existence of large cholesteatomatous masses in the antrum and attic, or large polyps and granulations blocking the way of drainage. But there still remains a large percentage of cases which may be guided to a successful termination if we use the right kind of treatment and use it properly.

The object of treatment of suppurative otitis is not primarily the cessation of the discharge, but the cure of the pathologic process on which it depends. The discharge is but a symptom and its relief is incidental to the cure of the disease. Since, however, the latter is never completely cured until the former stops, we may regard the two, from the standpoint of treatment, as synonymous. Our treatment should be directed, in some cases, to the general health, in many cases to the state of the nose, nasopharynx and Eustachian tubes, and in all cases to the seat of the suppuration in the middle-ear cavity and its immediate adnexa.

In some cases the continuance of the suppuration is maintained by systemic dyscrasia, impoverished or depraved states of the blood and general lowering of the