

basis of privileges granted, so long as the colonist remains within the jurisdiction of the State:

As neither time nor inclination permits a more elaborate presentation of such State provision for the suppression of inebriety, and cure of inebriates, as I have mentally evolved from materials of observation, memory and reflection, I will content myself with the suggestion that such provision should not be regarded as punitive in any sense, but benevolent and beneficent in every feature.

It will require, perhaps, more than one "campaign of education" to interest "statesmen" in such a scheme, but once tested I have no doubt of its success, and that the end will have compensated the labor.

TWENTY-ONE YEARS' EXPERIENCE IN THE NON-ALCOHOLIC TREATMENT OF DISEASE.

Read in the Section on State Medicine, at the Forty-Seventh Annual Meeting of the American Medical Association at Atlanta, Ga., May 5-8, 1896.

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On becoming connected with the Battle Creek Sanitarium, an institution of which I have had charge for the last twenty years, and having been connected with the institution for a year or two previous, I established a rule that alcohol should not be relied upon as a therapeutic agent in the treatment of curable cases; that, if used at all, it should be only in those cases which were utterly hopeless, and in which it would consequently be useless to withhold any agent which would afford even temporary relief to the patient's sufferings. These cases have been so exceedingly rare that it may be said that alcohol has been absolutely discarded as a therapeutic agent under any and all circumstances, in this institution, although it had been previously used, sparingly.

The total number of patients treated during this time, of which careful records have been kept, is 16,869. In addition to this, a considerable number of cases who have not been inmates of the institution have been treated by myself and my colleagues in the city and surrounding country, and in dispensary practice in connection with our medical mission in Chicago, of which less complete records have been kept.

The majority of cases treated have been persons suffering from chronic diseases. As the larger proportion have been sent to the institution by their attending physicians, it is scarcely necessary to state that they have been cases of more than ordinary gravity, requiring advantages which they could not receive at home.

A city of nearly twenty thousand inhabitants, in which the sanitarium is located, affords opportunity for a limited observation of acute disease. In the twenty-one years I have been connected with the institution, however, myself and my colleagues have treated 333 cases of typhoid fever in persons of all ages, with nine deaths, or a mortality of 2.7 per cent. Within the same time we treated eighty-two cases of pneumonia, with four deaths, or a mortality of 4.9 per cent. When we recall the fact that under the alcohol treatment of pneumonia and typhoid fever, the mortality rate has been 30 and 20 per cent. respectively, I think it will be conceded that our patients have in no wise suffered in consequence of the disuse of this drug.

Alcohol is much less used in the treatment of

chronic maladies at the present time than formerly, but many physicians still cling to the idea that alcohol is a stimulant, a nutrient, or in some way a supporter of vitality, and hence prescribe it in a variety of morbid conditions which are more or less chronic in character. I have demonstrated to my satisfaction the absolute inutility of alcohol for the accomplishment of any useful purpose in the treatment of either chronic or acute maladies.

One purpose of this paper is to call attention to other measures which may be used in the place of alcohol as a means of meeting the therapeutic indications which alcohol has been supposed to meet, but which experiments made by Dr. N. S. Davis long ago, and in recent years confirmed by numerous investigators, have shown it to be entirely incapable of meeting.

ALCOHOL AS A CARDIAC STIMULANT.

I have never found alcohol necessary in any case as a

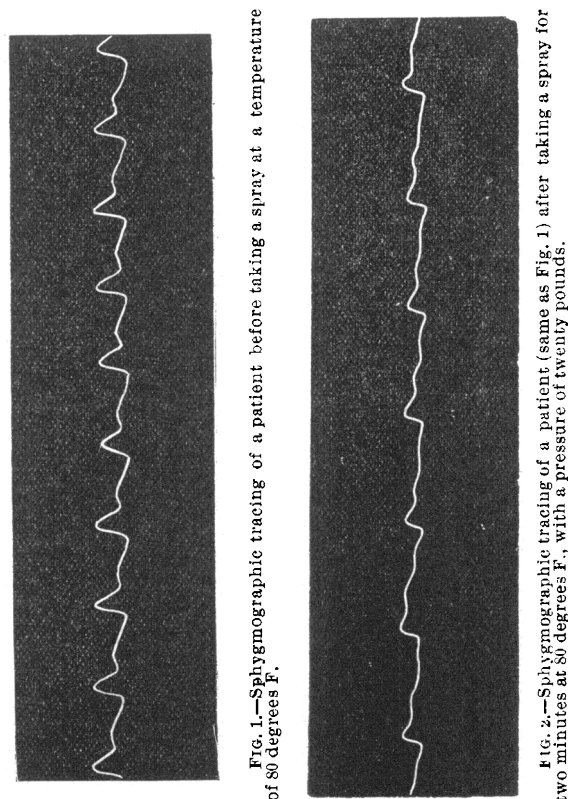


FIG. 1.—Sphygmographic tracing of a patient before taking a spray at a temperature of 80 degrees F.

FIG. 2.—Sphygmographic tracing of a patient (same as Fig. 1) after taking a spray for two minutes at 80 degrees F., with a pressure of twenty pounds.

cardiac stimulant, and all recent physiologic experiments respecting the effect of alcohol upon the heart go to show that it lessens its force rather than increases it; or, in other words, is a depressing agent rather than a tonic or stimulant. The cold shower bath is one of the most powerful of all means of stimulating cardiac activity. The application of cold water to the surface of the body produces an immediate increase in the strength of the pulse. This is very clearly shown by the sphygmograph, with which I have made a considerable number of tracings for the purpose of demonstrating the influence of peripheral applications of cold upon the heart and circulation. The cold shower bath, however, is by no means applicable in every case, neither is it always convenient. Cold may be applied to the skin in many other ways, as by the cool sponge bath or the short cold full bath; and the force of the application can be graduated to a nicety by varying the temperature of the water employed,

the length of the application, and the extent of surface to which the application is made.

The application of cold to the surface produces its effect upon the heart, both through its influence upon the peripheral blood vessels, and by means of a reflex action through the afferent vasomotor nerves and the sympathetic system. The effect of these peripheral applications upon the heart being almost instantaneous, it is very easy to graduate the dose to suit every possible case in which increased heart vigor is required.

The accompanying reproduction of sphygmographic tracings taken by my friend and colleague, Dr. W. H. Riley, very well show the influence of the peripheral application of cold as a cardiac tonic.

Alternate hot and cold sponging of the surface, or hot and cold sponging of the spine, short applications of dry heat over the heart, are also measures of value suited to particular cases. One would not apply cold to the general surface with the skin in a cyanotic condition or wet with perspiration. In such cases, vigorous hot and cold applications to the spine, hot fomentations over the heart, or general hot sponging immediately followed by a brief cold application, would be more appropriate. Drinking of hot water, the hot enema, and the alternate hot and cold foot bath, even the placing of the hands alternately in hot and cold water, are measures which operate powerfully in increasing the vigor of the heart. The value of applications of this sort in reviving the energies of the flagging heart are more clearly seen in cases of syncope, threatened death from chloroform, ether, cocain, opium, and other narcotic drugs, including alcohol.

I shall never forget the impression made upon my mind by a case of opium poisoning to which I was called some twenty years ago. Half a dozen physicians who were in the room had been applying various remedies, all without avail. I was sent for to bring galvanic and faradic batteries. I found the patient with respiration four a minute, pulse rate twenty, but very irregular. The breathing was labored. The patient had doubtless been unconscious for eight or ten hours. The electric applications slightly improved the pulse and respiration for a short time, but the patient quickly relapsed, and I then resorted to hot and cold applications, applying fomentations the whole length of the spine for one minute, then removing the hot cloths and rubbing the bare skin from occiput to sacrum with ice for ten or fifteen seconds, then reapplying the fomentations. In less than three minutes a change in the patient was noticeable. Perspiration appeared, respiration was increased to sixteen per minute, pulse rate to fifty, the patient moved about in bed, and even uttered a few words, to the astonishment of every person in the room. Although in this case the patient ultimately died, the wonderfully stimulating effect of the revulsive applications to the spine in arousing the activity of the cardiac and respiratory centers was apparent to all present.

I believe I have saved the lives of a number of persons under similar circumstances, by the use of this simple but wonderfully powerful measure.

The most powerful of all means of stimulating the heart is the alternate hot and cold spray or shower bath, applied to the whole surface of the body. In cases of chronic cardiac weakness, applications of this sort must be used with care. In some cases only the gentlest hydrotherapeutic measures should be em-

ployed; centripetal friction and carefully graduated joint movements should be depended upon as the most efficient means of gradually developing cardiac vigor.

I have, by the careful use of massage and the Swedish movements, frequently succeeded in bringing a patient suffering from cardiac insufficiency, from what seemed to be the very brink of the grave, to a condition of comparative health and vigor.

ALCOHOL AS A STOMACH TONIC.

In cases of chronic dyspepsia, the use of alcohol seems to be particularly deleterious, although not infrequently prescribed, if not in the form of alcohol or ordinary alcoholic liquors, in the form of some so-called "bitter," "elixir" or "cordial." Nothing could be farther removed from the truth than the popular notion that alcohol, at least in the form of certain wines, is helpful to digestion. Roberts showed, years ago, that alcohol, even in small doses, diminishes the activity of the stomach in the digestion of proteids. Gluzinski¹ showed, ten years ago, that alcohol causes an arrest in the secretion of pepsin, and also of its action upon food. Wolff² showed that the habitual use of alcohol produces disorder of the stomach to such a degree as to render it incapable of responding to the normal excitation of the food. Hugouenec³ found that all wines, without exception, prevent the action of pepsin upon proteids. The most harmful are those which contain large quantities of alcohol, cream of tartar, or coloring matter. Wines often contain coloring matters which at once completely arrest digestion, such as methylin blue and fuchsin.

A few years ago I made a series of experiments in which I administered alcohol in various forms with a test meal, noting the effect upon the stomach fluid as determined by the accurate chemic examination of the method of Hayem and Winter. The result of these experiments I reported at the 1893 meeting of the American Medical Temperance Association. The subject of experiment was a healthy young man whose stomach was doing a slight excess of work, the amount of combined chlorin being nearly 50 per cent. above normal, although the amount of free hydrochloric acid was normal in quantity. Four ounces of claret with the ordinary test meal reduced the free hydrochloric acid from 28 milligrams per 100 c.c. of stomach fluid to zero, and the combined chlorin from .270 to .125. In the same case the administration of two ounces of brandy with the ordinary test meal reduced the combined chlorin to .035, scarcely more than one-eighth of the original amount, the free hydrochloric acid remaining at zero. Thus it appears that four ounces of claret produced marked hypopepsia in a case of moderate hyperpepsia, whereas two ounces of brandy produced practically apepsia.

There would seem to be no further proof needed that alcohol is of no use in the treatment of disorders of digestion. Indeed, Dr. Roberts asserts that alcohol is useful only as a means of hindering digestion, which he considers a very important function in it, owing to the tendency of excessive alimentation, especially in the excessive use of meats. Dr. Roberts' recommendation is perfectly consistent with the results of this investigation, so far as the effects of alcohol are concerned, although it would seem to be more sensible to suppress the excess of nitrogenous foods, or the total

¹ Arch. f. Klin. Med., 1886.

² Zeitschrift f. Clin. Med., 1889.

³ Lyon Med., 1891.

amount of food taken, rather than to indulge in the use of a drug to act as a disturbance and hindrance to the digestive process. The disorders of digestion are easily managed by the rational employment of dietetics in connection with a careful investigation of the stomach fluid by the exact chemic and bacteriologic methods with which we are now acquainted.

Roberts has also shown, and the writer's experiments verify his conclusions, that wines, beers and similar liquors, in even comparatively small doses, prevent the salivary digestion of starch in the stomach. Thus it appears that stomach digestion is altogether interfered with, and inhibited by alcohol in any form.

ALCOHOL AS A TONIC OR STIMULANT.

Nothing could be more absurd than the use of alcohol or alcoholic preparations in the production of so-called tonic effects. Far from being a tonic, alcohol is not even a stimulant. Recent investigations show clearly that the drug is a narcotic and a sedative rather than a stimulant. In a paper presented before the American Medical Temperance Association three years ago, I gave the results of psychologic tests made upon a number of persons before and after taking alcohol, by which I showed that the reaction for the tactile and the temperature sense were both diminished more than 100 per cent., while the muscular strength was diminished more than 30 per cent. Alcohol benumbs nerve structures of every sort, and does not in the slightest degree increase either mental or nerve activity. Nothing could be more absurd than the common prescription of alcohol or of such mixtures as Vin Mariana, when tonic effects are desired. These drugs are simply nerve foolers. They lessen nerve sensibility and thereby diminish the sense of fatigue, exhaustion, weakness, or whatever discomfort may exist.

ALCOHOL AS A NUTRIENT.

It has long been known that the use of alcohol diminishes the elimination of proteid substances in the excretions. This was thought to be an evidence that, if it were not an actual food, it was at least a means whereby tissue degeneration might be lessened and thereby the bodily waste diminished. Careful investigation of this matter shows, however, that alcohol does not actually diminish the amount of the products of tissue activity, but that it prevents their elimination, so that they remain in the tissues.

It is only recently, since the subject of leucomains, ptomains, and toxins has come to be appreciated from a practical standpoint, that the full significance of the diminution of tissue waste under the influence of alcohol could be understood. Instead of being an evidence of tissue preservation, this lessening of the elimination of tissue waste is simply an evidence of the accumulation of waste and poisonous substances within the body, through the lessened efficiency of the liver and the kidneys.

In an experiment made a year or two ago, I found the coefficient of urinary toxicity to be diminished 50 per cent. in the case of a vigorous young man, by the injection of two ounces of brandy. As I argued in a paper presented at the last meeting of the American Medical Temperance Association, this fact is one of profound significance in relation to the use of alcohol in such infectious maladies as typhoid fever, diphtheria, pneumonia, and similar disorders. In these diseases the system is struggling under the influence

of poisons, which the liver endeavors to destroy and the kidneys to eliminate. By lessening the efficiency of the kidneys as eliminating organs, and the liver as a disinfecting organ, it is evident that the risk of death must be considerably increased; hence the use of alcohol in cases of this sort must be condemned.

When we remember that in the majority of chronic cases, as well as most acute maladies, the system is suffering from more or less pronounced toxemia, through the failure of the liver, kidneys, lungs, skin, and other eliminative organs to do their full duty, it becomes apparent that the use of alcohol must be not only detrimental, but in many cases even absolutely dangerous.

The patient suffering from dilatation of the stomach is continually in a state of toxemia, through the development of ptomains, as the result of too long retention of food substances in the stomach, and the consequent action of germs of various sorts upon the food elements. As a rule, a patient suffering from an acute disease requires simply good nursing and such treatment as will aid nature in the elimination of poisons to which the most active symptoms are due. In the treatment of chronic disease, the patient requires not only increased elimination of poisons, but the adoption of such measures as will suppress the development of these poisons, such as careful regulation of dietary, and maintenance of an aseptic or germ-free condition of the stomach. The system of the invalid needs to be generally reconstructed. This requires tissue renovation and regeneration. The use of alcohol in such cases, then, must be evil, and only evil.

I should not omit to mention the Turkish bath and similar therapeutic means, as one of the most effectual means of accomplishing the tissue reconstruction necessary for the cure of various chronic disorders, and particularly that class in which alcohol is so freely prescribed, and most of all in cases of alcohol addiction, in its various forms.

SOME NOTES ON ALCOHOL IN THERAPEUTICS.

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Some very strange conceptions of alcohol as a medicine exist, and are repeated in really excellent text-books of medicine. Evidently they are the repetitions of assertions of authors which have been accepted without question.

One of these precepts is to increase the amount of spirits if the smaller doses do not seem to have the effect desired.

In a given case one ounce of brandy every four hours is increased to the same amount every two hours. Spirits are said to be indicated and the dose and frequency is the measure of its power.

Recent text-books urge that spirits be given freely in certain cases and prescriptions containing large quantities of spirits are presented as guides. In some cases cautions concerning the dose and its frequency are given, but the fact is assumed that large doses have certain definite effects that can be studied and understood. These counsels are not in accord with the observed facts, and in some cases diametrically