

treat the same way. Much could be said for the efficacy of baths in diseases of the skin.

We have spoken before of the use of hydrotherapy in chronic disease. It has a wide field in the treatment of deformities. The douche may be employed in lateral curvature of the spine with great advantage, it is often helpful in the deformities due to the paralyzes of polio-myelitis anterior, in torticollis and lumbago. We have seen great benefit arise from this cold douche in melancholia, anæmia and chorea, and hydropathists have been very fortunate in the treatment of hysteria and irregularities of menstruation.

Every city in Europe of good size contains many hydropathic establishments. Many physicians study the science and send their patients to be treated at places where they know the principal and assistants will carry out the treatment they prescribe, many establishments send out skilled nurses who follow at the homes of patients the rigid treatment desired.

Hydrotherapy has been practised very little outside of the large establishments devoted to its hydriatic treatment, which, removed from the centres of population, are under physicians pledged to carry out its principles. This is very well for the rich, and the conditions are surely the best under which it can be practiced, but it will be very circumscribed if all classes cannot enjoy its benefits. It is not limited to the elegant sanitarium, for every physician can prescribe the bath, douche, hot or cold half-baths, hip baths, foot bath, wet sheets, etc., and will as heretofore enjoin early hours, proper nourishment, fresh air, and exercise, so that without the ozone of the mountains, he may nevertheless do no more for his patients toward the preservation of health and cure of disease.

A DISCUSSION ON THE "TREATMENT OF TYPHOID FEVER."

Indications for Treatment, by O. A. Ball, M. D.

At the Meeting of the Albany County Medical Society, Nov. 18, 1891.

WE have for consideration the indications for treatment of an acute infectious disease of a specific form. Characterized by a gastrointestinal catarrh a febril movement of continual type. Varying in duration from ten to twenty days or more, and in intensity from one to several degrees above normal temperature. Marked by great wasting and extreme prostration of the system and accompanied by certain nervous phenomena of greater or less urgency and recognized after death by constant lesions of the solitary and aguminate glands of the intestines together with enlargement of the mesenteric glands and of the spleen, a disease which attacks any period of life, though not common in early infancy or extreme old age. As before stated typhoid fever always presents uniform and constant lesions, so constant and so cer-

tain that we can positively determine after death if not before, whether the disease was present in a given case or not.

If then we have a specific disease, we must necessarily have a specific cause producing that disease. And our first indication for treatment is to destroy that cause if it can be done, or failing in that, to eliminate it from the system as rapidly as possible.

Having no antidote as yet for typhoid fever, have we any means at our disposal to fulfill the second indication, with safety to the patient? This question cannot be fully discussed in a paper of this character at this time. Briefly we may say that no system of treatment has as yet been devised that will with certainty and in every case shorten the course of the disease for one hour so far as we know; that certain methods of treatment seem to modify the violence of an attack in some cases is true, but that the disease is shortened in its course is very problematical to say the least. There are three great emunctories through which we may act in aiding nature to eliminate disease producing elements, all of which should be called into active co operation in this disease. Our treatment in other respects must be governed by symptomatic indications, always bearing in mind and attempting to ward off those conditions that are likely to prove destructive to our patient.

Our first care should be to instruct those having charge of the patient how to disinfect the dejections from the patient, not forgetting that the urinary secretions are just as dangerously infective as are those from the bowels. For disinfecting it is best to use chloride of lime, four ounces to the gallon of water; at least a quart of this solution should be placed in the pan in which the dejections are received, the same to be thoroughly mixed and allowed to stand an hour before emptying into closet. The patient's buttox, thighs and genitals should be bathed in an aqueous solution of carbolic acid after each movement of the bowels or bladder. This personal hygeia of the patient is just as necessary in the mild as in the more grave forms of the disease and should be continued for at least ten days after all manifestations of the disease have ceased. As a rule patients with a mild form of fever, say one whose temperature does not exceed 103 with a decided morning remission do not need nor are they apparently benefitted by any special course of treatment. Such cases need careful nursing, fresh air, clean clothing, unstimulating diet as free from starch as possible and careful watching by the medical attendant, that no complication may find him off his guard. They usually progress to a favorable termination without much medication, or any in fact.

We should try and ascertain from a careful study of our patient, and his surroundings, which of the most usually fatal forms of the disease, he is most liable to succumb to if to either, and try to anticipate and prepare for the danger before it is upon us if possible. In my opinion the usual diarrhoea that accompanies this disease should never be interfered with, without there are other indications other than it that demands it.

The most serious cases we meet in my experience are those attended by constipation from the first. The usually fatal forms of the disease in uncomplicated cases are heart failure, cerebral paralysis,

peritonitis from perforation and intestinal hemorrhage, and infrequency about in the order named.

The diagnosis between the two conditions last named is not easy to be made especially when the hemorrhage is concealed, and yet it is very important that it should be, for our patient's life may surely depend upon our accuracy in this instance. Both are attended by sudden collapse and a fall of temperature below normal. To be as brief as possible our main diagnostic point is in careful percussion of the abdomen. If the collapse is due to hemorrhage there will usually be dullness in the right umbilical and iliac regions in as much as the hemorrhagic ulcer as well as the perforating one is almost invariably in the lower portions of the ileum.

In perforation the escaping gase will so distend the abdomen that the liver dullness will be lost. This is a point that must not be forgotten, for while the chances of recovery is very slight, from abdominal section in typhoid cases, yet the indications point too strongly to that procedure to be neglected if we would give our patients all the chances for recovery. If then we are satisfied that perforation has occurred, there should be no time lost in calling in a surgeon to perform a laparotomy.

Danger from high temperature calls for antipyretics in some form whether internal medication or externally applied will be determined more by the condition of the heart and nervous system, than upon the theory that cold water is the only desirable means of lowering temperature.

A frequent and feeble pulse calls for alcoholic stimulants. Sleeplessness and restless delirium call for active interference.

Cerebral paralysis I apprehend is usually due to the specific poison of the disease and is often relieved by an energetic cathartic and especially one like calomel that calls the kidneys into immediate activity with the bowels.

Epistaxis can usually be controlled by pressure.

Hemorrhage from the bowels if excessive is a condition of extreme danger, and requires very careful management to avoid sudden collapse and immediate death.

Bronchitis is present in so many cases that it may be considered one of the phenomena of the disease and not a complication. And when severe is an element of danger that should not be overlooked.

Embolic abscess and periostitis if they occur are to be treated on general surgical principals.

Hypostatic pneumonia is a resultant of a weak heart, and best controlled by attention to that organ. Thrombosis is liable to occur in any of the veins, and especially in the cerebral scienses. Meningitis is so rarely present in typhoid fever that it cannot be classed as belonging to its category of symptoms, in fact the serous membranes pretty generally escape unharmed without they have been previously diseased.

Dietetic Treatment of Typhoid Fever, by Henry Hun, M. D.

Shall we not be guided in our selection of a diet for typhoid fever by the same factors which lead us to select our diet in a condition of health, that is by our appetite and our taste. In a condition of health

from time to time a keen appetite or hunger causes us to eat and no one needs to be told that this is essential in order that we may live. Furthermore, by our taste we select from the thousand things in the world that might be eaten, certain things which we like; thus, to take only one example, from the great number of saline substances we select salt (chloride of sodium) as a very desirable addition to our food, and we cannot doubt that in the course of years, not only the individual but the race is gradually led to select those things which, on the whole, are the most healthy, and that it is better for us to eat chloride of sodium than chloride of ammonium or any other saline substance. It is true that in some cases the appetite and taste are perverted, and need to be restrained and guided, but in the great majority of cases they lead us to take those things which in a general way are best adapted to our needs.

Now if it be true that disease is a process by which the system removes from itself some noxious thing which has entered it, and that the diseased or pathological processes are merely physiological ones so modified as better to preserve the integrity of the body and are in their nature curative, may it not be that our appetite and taste become changed in disease in such a way as to aid in the progress of recovery? It is certainly true that in typhoid fever the normal appetite and taste are profoundly altered and may we not get some light on the proper diet in this fever by studying the altered appetite and taste? Almost as a universal rule in typhoid fever the appetite and taste are modified from a condition of health in these three ways: 1st. There is a great thirst; 2d, there is a loss of appetite for meats and vegetables (so-called hearty food), and for food containing sugar (sweets), and 3d, there is a persistence in a greater or lesser degree of appetite for liquid food of which milk may be taken as the representative; and, for my part I believe, that we have no better indications for the dietetic treatment of typhoid fever than these three which are furnished us in the perversion of the normal appetite and taste in this disease, and in the short time at my disposal I shall briefly consider each of these indications for treatment.

First. In typhoid fever the patients suffer the most extreme thirst and to refuse them water is to do what is apparently cruel, and what is, I think, as a matter of fact, harmful. On account of the high fever a very large amount of water passes through the skin, as both sensible and insensible perspiration, and the diarrhoea still further takes water from the system. As a consequence the skin becomes dry, the tongue parched and heavily coated, there is very little secretion from the salivary, pancreatic and intestinal glands, and all the organs and tissues of the body are very dry, so much so that autopsies of cases of typhoid fever are almost always dry autopsies, there scarcely being any fluid running from the tissues.

In addition to this we have a peculiar degeneration taking place in the internal organs, especially the liver, kidneys and heart, to which great attention has been paid and to which has been attributed the dangerous cardiac weakness often present in this disease. This is the so-called parenchymatous degeneration which consists in the separation of little particles of solid albuminous matter from the fluid protoplasm of the cells, giving the cells a granular appearance, and to these degen-

erated and weakened cells, especially in the cardiac muscle, the death of the patient is referred. The little granules in the cell disappear on the addition of acetic acid and are simply solid albuminous matter, and the thought must occur to us, that they are due to the fact that there is not sufficient water in the cell to keep them in solution. This parenchymatous degeneration is found in the viscera of animals which have been exposed for a long time in a hot box to high temperatures, but have animals thus exposed to high temperatures who at the same time are given large quantities of liquid food do not show this parenchymatous degeneration, a further proof that the protoplasm becomes solid simply for want of water, and that this can be prevented by furnishing the system with a large quantity of water. So that from theoretical grounds the administration of water in typhoid fever is called for. Certainly in practice I am convinced that where we do give large quantities of water to our patients with typhoid fever all the symptoms of the disease are rendered less severe, and even the diarrhœa is not increased, and, I believe, that the good effects of cold baths in many cases is due in part at least to the absorption of water by the skin during the bath. Therefore, as the result of theory and practice we are led to follow the demands of the appetite in typhoid fever and to give the patient large quantities of water. This he will take readily enough in the early stages of the disease, and when he becomes dull or comatose, and in no condition to appreciate the need for water we should still urge him to drink it at regular intervals.

Second. In typhoid fever there is a great aversion to hearty food, such as meats and vegetables, and when such food is taken nausea and vomiting are apt to result, and Zuezer has found that there has been a rise of temperature immediately following the ingestion of such food. This aversion to hearty food is probably due to the diminished quantity of water in the system and the consequent scanty secretion of the glands connected with the alimentary tract which is entirely insufficient for the digestion of such food. Furthermore, we must remember that, although in a condition of health by the time the food has reached the lower portion of the small intestines it has become so far digested as to be entirely fluid, yet, in the condition of disease in consequence of the imperfect digestion, and in consequence of the more rapid peristalsis which manifests itself in the diarrhœa, the food may not be perfectly digested and may reach the lower bowel in a more or less solid condition, and thus irritate the inflamed Peyer's patches. For the same reason food containing indigestible seeds or irritating insoluble substances, such as pepper, which might find a lodgment and cause irritation of the ulcerated Peyer's patches are to be avoided.

The aversion to sugar and sweets which typhoid fever patients betray is so strong that they often will refuse to take ice-cream or custard, which they otherwise would very much enjoy, simply because they are too sweet, and they desire to have all such food made with little or no sugar. This aversion to sugar is, perhaps, due in part to the amount of water which such substances require for their solution, and in part to the fact that these substances are apt to produce a flatulent dyspepsia which is especially bad in typhoid fever where the tympanites is always a more or less distressing symptom. It seems to me, then, that besides the aversion of the patient and the difficulty

which we would have in administering such food that we have good and sufficient reasons for following the patients' taste in this matter also, and to exclude from the diet of typhoid fever meats, vegetables, and food containing much sugar.

Third. In typhoid fever although the patients have lost all appetite for hearty food and for sweets yet they often show a decided appetite for liquid foods especially for milk and for some form of soup or extract made from meat. Many patients in the early stage of typhoid fever enjoy drinking milk very much indeed, and find a glass of cold milk delicious even though in health they do not like this article of diet, and many persons take no other food than milk during the whole course of their fever. In case the milk is vomited in curds it may be necessary to add lime water to it or to peptonize it if the addition of lime water is not sufficient. When even peptonized milk is rejected by the stomach then some preparation of infant's food, such as Mellin's food or Imperial Granum made with milk is often very well borne indeed, or Kumyss or Matzoon may be tried; although the large amount of carbonic acid gas contained in these preparations of milk make them of doubtful value in typhoid fever on account of the tympanites. Even when milk is well borne it is often desirable for the sake of variety and to preserve the appetite of the patient to add other articles to it, the addition of an egg beaten up in the milk is a very nutritious, and where the stomach is strong enough to bear it, a very desirable thing. Custard of various kinds, especially rennet custard, ice cream made with a simple fruit flavor, and ordinary tea with much milk are often very grateful to these patients and very nourishing.

Although many cases can thus be nourished throughout the entire fever with milk and some modification of milk, yet the addition of soups or meat extracts is often very desirable. The beef extracts do not contain, perhaps, a great deal of nourishment, but they act as stimulants and are often so eagerly desired by patients with fever that their use seems to be essential. These extracts of beef should be made with only a small amount of water and at a low temperature so as not to coagulate the albumen and thus impair what little nutritive value the extract possesses. Even better than these extracts is often scraped beef, or the juice pressed from scraped beef, and this scraped beef can often be spread on thin slices of stale bread with advantage. Well boiled rice either alone or added to the beef extract is also of great value. The liquid part of oyster or clam soups made with milk, and even the soft part of raw oysters without pepper, and soft boiled eggs may form part of a diet of typhoid fever in many cases.

Liquid or semi-liquid food composed of milk, eggs, and the juice of meat, must form the diet in typhoid fever, and such a diet corresponds to the taste of the majority of the patients with typhoid fever, and must be modified in each case to correspond to the taste of the individual patient unless the thing that he desires is manifestly injurious.

In regard to the part that alcohol should play in the diet of typhoid fever I think that here too we must be guided by the taste of the patient. If he has been for a long time accustomed to the use of alcoholic stimulants, and if such drinks are pleasant to him, then it will be wise to continue the administration of a moderate amount of wine or other alcoholic drinks during the fever. But, if the

patient has not been accustomed to their use, and has no taste for them, then his diet should not include them. Whether or not under certain conditions alcohol should be given in typhoid fever as a medicine does not concern us here.

A very important branch of our subject is that of the diet of convalescence from typhoid fever. But interesting and important as the consideration of this is I must omit it for want of time, and must confine myself strictly to the subject of the dietetic treatment of typhoid fever itself. In the consideration of this subject I have not mentioned a great variety of foods which have been used in typhoid fever, but have sought for the principles which should guide us in our selection of such a diet, and desire to draw attention especially to the importance of consulting the taste and inclination of the patient; a source of knowledge and guide to treatment in all diseases of the greatest value, and one, which, it seems to me, has been too much neglected by physicians in the past very much to the detriment of their patients.

Antipyretic Treatment, by J. V. Hennessy, M. D.

Though most of the drugs and modes of treatment that are used in typhoid fever, have been more or less recommended for their power to lower the temperature or prevent its rise, either directly or indirectly, still under the name Antipyretic Treatment, I believe that what is generally understood is the treatment of a hypernormal temperature as a symptom.

There probably is no point in the therapeutics of this disease, upon which such diametrically opposed views are entertained by authors and general practitioners; not only on the question "Which Antipyretic should be used," but also on the more important one "Should any such means be employed." The short time allotted renders it impossible, even if it were desirable to quote authors.

It has been contended on the one side that the dangers of typhoid fever are in direct ratio to the height of the fever, and are to a great extent due to it; and, therefore, that to control the temperature, is sure to lower the mortality.

On the other hand it is claimed that the high temperature is not the *cause* of the nervous phenomena, the delirium, etc.; nor of the accidents nor complications which may occur in the course of the disease, and therefore, it is useless to combat it.

Of those who oppose antipyretic treatment, it can be said that their objections are chiefly theoretical; while those who favor it, base their convictions upon clinical experience and on statistics drawn from it.

Of the means for combating a hypernormal treatment, I will speak only of antipyrine, antifebrin, thallin, and the cold bath; believing that quinine, salicylic acid, eucalyptus, and a number of other drugs, have by common consent been dropped, either because of their faint and uncertain action, or on account of unpleasant effects. Antipyrine holds a high place as an antipyretic and is given in doses of from 10 to 30 grs; whenever the temperature is too high, that is when it reaches 104. The result is usually a fall of from two to three degrees which persists for a variable time (usually 24 hours).

The disadvantage of using antipyrine is that occasionally, distressing symptoms follow its exhibition, such as cyanosis, collapse, etc.

Thallin is used in doses of from 2 to 5 gr. and is believed by many to be as good as if not superior to antipyrine. For antifebrine it is claimed that small doses (3 to 5 grains) repeated when necessary every 2 to 4 hours will certainly reduce the temperature, quiet the restlessness, relieve the severe headache, and generally contribute to the comfort of the patient; and that in these doses there is no danger of cardiac failure or any other unpleasant effect. That these drugs will reduce the temperature is a certainty, and that the general comfort of the patient is added to, seems to be no less true;—but there appears to be a fair amount of agreement among observers that the duration of the disease is in no way shortened, and that there is a greater liability to relapses than after a purely expectant plan of treatment. But it is the cold bath, which, during the last few years, has been most highly praised, and if the statistics based upon the treatment after the method of Brand are to be relied upon, then it is deserving of the closest attention.

These statistics show a mortality ranging from 0 to 5 per cent. as compared with 7 to 20 per cent. under treatment by the expectant method. It is true that in these figures there may be some element of falsity, as the good results may in part be due to better dietetic management or to other factors of which we do not know, but we will have to take them as they are.

In favor of the method, we have to admit, that those who have used it the most believe in it the strongest even going so far as to say that any case if taken early is certain to run a mild course.

It is true that in private practice a large proportion of cases can not possibly be so treated; but where it is possible is it not the best treatment?

According to Brand's method the baths should be given with regularity, beginning as soon as the patient comes under observation. (If the fever ends within two weeks the diagnosis of typhoid is withdrawn), and no matter whether there are complications or not, such as intestinal hemorrhage, bronchitis or even pneumonia, they should be persisted in, usually with the result of having these unpleasant conditions disappear.

The bath may be given in several ways—the full cold bath, the partial bath, and the warm bath gradually cooled.

The patient is carried to the bath room or the bath tub is brought to the bed side, and the patient is entirely submerged except the head.

The full cold bath, which is given in the majority of cases, should be of a temperature of from 64 to 68. The patient is allowed to remain in this for about 15 minutes or not so long if marked shivering occur. The partial bath with cold affusions is to be preferred when there are chest complications.

In this bath the temperature is about 82; the patient immersed in it and water of a temperature of 50 poured over the head and shoulders, and the patient is briskly rubbed with a sponge or brush. This bath is said to be highly stimulating and may be continued for 5 to 10 minutes.

The warm bath gradually cooled is to be preferred in children, the aged or where there is marked cardiac weakness.

In this bath the water at first is about the temperature of the patient, and is gradually cooled by the addition of ice or cold water, till at the conclusion it is about 68. In this the patient may remain from 20 to 30 minutes. In any case the bath should be discontinued when shivering takes place or when there is marked evidence of weakness. The patient is then put in bed; and friction, hot bottles or stimulants used, as may be indicated.

The number of baths to be given in twenty-four hours varies from 2 to 10 or 12 according to the temperature of the patient and the zeal of the attendant.

Cold sponging as a means of lowering the temperature apparently takes a very low place among antipyretic remedies.

I do not know why this should be so, nor can I say whether extended observations have been made with it as with the cold bath, but it does seem that if the same time or even more were consumed, and water as cold 60 or 62 used that its refrigerant action would at least be nearly as great as when the patient is submerged, as to the application of cold is added the effect of evaporation.

In it we have all the stimulating effects of the bath, without the unpleasant ones, not least of which is the dread (and in children this would amount to positive terror) and the almost unconquerable prejudice of friends. Besides it may be well done without the help of a skilled attendant and in the most inconvenient apartments.

Value of Alcohol in the Treatment, by S. B. Ward.

Typhoid fever. To discuss this subject intelligently, we must begin with a few words concerning the action of alcohol upon the human organism, from a physiological standpoint. All liquors, ales, wines and beers contain alcohol in varying proportions and in varying combinations. The distilled liquors exert their influence almost solely through the alcohol which they contain, while the ales, porters and beers contain no inconsiderable quantity of solid matters, some of which are far from being inert. The chemical composition of alcohol, C_2H_6O , may properly cause it to be classed among the non-nitrogenous substances, which class includes also starches, sugars and fats. Physiological researches seem to have shown that alcohol is eliminated by the lungs, skin and kidneys combined. It appears also that it first circulates in the blood through all the tissues of the body, and that when taken in quantities sufficient to produce intoxication, a considerable percentage of it disappears by some transformation in the body and is not thrown off as alcohol. Taken in moderate quantities it produces, in some persons, a certain degree of nervous exaltation and sharpens the mental faculties, while in others the latter become blunted almost at once, and this latter condition occurs always if a sufficient quantity is taken.

The phenomena attendant upon large doses, frequently repeated, are known to you all. Death may even follow the delirium potatorum. That with many persons alcohol gives temporary tone and vigor, can scarcely be doubted; still, the depression following in most persons, more than offsets the temporary advantage. By its use in moderate quan-

tity, continued for a number of days, the exhalation of CO_2 and also the discharge of urea and excrementitious matters, are notably diminished. When the organism can be adequately supplied with food, and the food properly digested and assimilated, alcohol may be said to be always injurious; but when in almost any form of illness, food cannot be taken, or cannot be digested, or cannot be assimilated, then alcohol may temporarily replace the food and restore the powers of the body, but the effect of its long continued use, especially with insufficient nourishment, shows that it is not possible for it to long take the place of other and assimilable matters.

While alcohol taken in considerable quantities produces a sensation of warmth, yet the experience of all travelers in the Arctic regions shows that the men exposed to excessive cold did better without alcohol than with it. Some accidental great over-exposure may necessitate its temporary use, but in any other way it is positively injurious on account of the great depression and reaction that follow it. Hot coffee is found to be infinitely more valuable for the purpose stated. Alcohol acts as a narcotic on the sympathetic nervous system, while tea and coffee excite the cerebro-spinal axis. The former stupifies, while the latter brightens the intellect; the former inebriates, the latter cheers and preserves.

When alcohol is given therapeutically, its immediate action is upon the sympathetic nervous system, where it exercises a sedative influence upon the vaso-inhibitory nerves, increasing the frequency of the heart-beat and also its force. It necessarily follows that the capillaries are dilated, diffusing temporary warmth throughout the system, at the same time increasing the blood supply to the nerve centres; and, if taken in excess, exerting its physiological influence upon the brain. Probably when it is decided that alcohol should be administered at all, there is no safer practical rule than that is doing good in any quantity, no matter how great, which produces no effect on the intellectual part of the man, and that it is given in excess just as soon as it does.

While alcohol produces a sensation of warmth, the fact is that its exhibition in moderate doses produces a moderate diminution, and in larger doses a considerable reduction of the bodily temperature, the diminution being in proportion to the amount of the alcohol ingested. From its chemical composition one might suppose *a priori* that the oxidation of the hydrogen which it contains would augment the temperature of the body. It is, however, an established fact that its influence in checking tissue change and oxidation is so powerful as to more than offset the heat produced by its own oxidation; and from this arises the fact that its administration reduces, instead of raising the temperature of the body.

It is quite possible that this action is also enhanced by its capacity to dilate the capillaries in the skin, thereby increasing the radiation of heat from the surface. It is also aided by the additional activity which it causes in the sweat glands and the subsequent rapid evaporation of perspiration. In toxic doses, the temperature has been known to fall from two to four degrees Fahrenheit, as a consequence of the influence of this drug.

Therapeutically considered, one of the most important properties of alcohol is the action it has in calming bodily restlessness, in produc-

ing sleep and in quieting delirium. Another valuable action is its capacity to increase the force of the heart beat. Nothnagel explains this by stating that it is a direct stimulant to the vagus nerve, through the pneumogastric centre in the brain, and that it probably also acts directly on the heart plexus.

With reference to its use in typhoid fever, we may start out with the fundamental proposition that its administration should form no essential part of the treatment of this disease; it should be prescribed only as any other drug, or remedial agent is, for well defined reasons. Certainly alcohol should not be administered at the outset of any case, unless the patient be one of the class known as "steady drinkers," and show, as some of them will, within the first few days, the bad effects of suddenly stopping the stimulant.

If the patient be greatly reduced in strength and especially anæmic, he may need alcohol earlier than a strong, plethoric patient; but it is best, under any circumstances, to reserve this powerful agent for possible complications that may come later, and especially for heart failure.

Indications for its use are:

First—Feeble or imperceptible radial pulse with corresponding weakness of the first sound of the heart on auscultation. It is possible that even then some other drug, such as digitalis or strophanthus, may answer a better purpose than alcohol, or, at any rate, may prove an indispensable adjuvant.

Second—The condition of the intestinal tract, principally gangrene and sloughing, with resulting depression. To administer alcohol during the first week of typhoid fever, with a view of preventing heart failure or depression, it is worse than useless.

It is impossible to lay down any definite rule as to the amount of alcohol to be administered. The character of the heart systole and the symptoms on the part of the nervous system are the best guides. If these are improved under its administration, its use is doing good; if not, it is doing harm.

It is equally impossible to lay down any exact rule as to the amount to be given, save that as you are giving it for some purpose, it is proper to endeavor to accomplish that purpose.

As I said before, I believe that when any symptoms of intoxication are being produced, your stimulant is doing more harm than good. If, on the other hand, the pulse is increased in strength and the heart-sounds are improved in quality, we should not care whether half a pint or a pint a day is being administered. I have seen one excellent practitioner order a teaspoonful of whisky to be administered every three or four hours; and I have known a weak, feeble woman, who had never before used stimulants in her life, take a quart of brandy, a pint of sherry and a bottle of champagne every twenty-four hours, with the effect, as appeared, and as I believed, of saving her life. As a rule, whisky and brandy are better borne than any other form of stimulant. Some few patients, however, will take champagne with better effect, and I know of no objection to it unless the collection of gas in the intestines be hereby increased. Some authors recommend always giving the spirits diluted with water. It is my custom to give it in the shape of milk punch, as the mode has seemed to me to afford better

results. During the height of the fever, whisky and brandy have seemed to me to answer a better purpose than the light wines; but during convalescence, the latter give the best results, and especially if taken with meals. In no case should the amount to be administered be left to the discretion of friends or the family. It should be definitely and specifically prescribed and the effect carefully watched.

In conclusion, I must acknowledge my indebtedness for the arrangement of the physiological part of this paper to the lecture of my friend Professor Townsend on this subject, and for material aid in looking up the literature, to my friend Dr. Brennan.

Medicinal Treatment, by T. K. Perry, M. D.

That the medical treatment of typhoid fever has been considered of inestimable value is abundantly evidenced, not only by the mass of testimony relative to the subject, but the character and world wide reputation of the observers whose contributions we have regarded as authoritative, and for the time, convincing. When such renowned clinicians as Leibermeister, Zeimsson, Niemeyer, Winderlich, Trosseau, Chomel, Murchinson, Jenner, Johnson, Parks, Flint, Loomis and Bartholow, assure their less astute brethren that certain medicinal agents are not only necessary, but of paramount importance in the treatment of this disease, it would seem extreme professional heresy, and almost suicidal to recede from their position.

That a most decided revolution has been, and is, taking place concerning this very matter of medicine in typhoid fever, no one who reads at all carefully or comprehensively, can for a minute doubt. Nor is this strange when one considers that the very eminent observers above quoted arrived at their conclusion, and pinned their faith, in medicinal agents of greatly varying strength and kind. One treated with nitro-mur, another with sulphurous, another with acetic and yet another with carbolic acid. Others again extolled the use of various preparations of amonia, sulpho carbolates and even po. borax. Yet others again were of the mercurial school and believed calomel almost a specific. Others used iodine, or iodine alternating with either mercury or carbolic acid. Others digitatis, veratria vir, or even aconite. Others nitrate of silver, tartar emetic, oil of turpentine, etc., etc. Then came the craze for cinchona and its various preparations and finally alkaloids, and lastly the indiscriminate use of every so-called antipyretic no matter from what source obtained. The modern practitioner, confronted by this mass of conflicting, confusing and almost amusing testimony, with his more conservative ideas, more nearly perfected methods of research and a much better knowledge of the natural history and pathology of this disease, and believing it self-limited and tending under ordinary circumstances toward recovery, almost marvels that any recovered under some of the older methods, and is himself obary of all medicines, so far as their specific effect or abortive influence is concerned, and possibly flies to the other extreme. But, however, this may be, we are doubtless not all agreed on this point, and presumably many of our ablest and best, feel a greater sense of security when they know that some one or more therapeutic agents are being given their patients at stated intervals.

For the purpose then of fulfilling my share toward precipitating

the subsequent discussion of this subject, permit me to direct your attention to the medicines which I believe are more generally used. First, we will have reference to the regular uncomplicated form and will group the agents according to their supposed efficacy into abortives, specifics, antipyretics and tonics. So noted an observer as Ziemssen believed it possible to abort or cut short the disease by the early and prompt administration of a seidlitz powder followed by full doses of iodide of potassium. The same author lays great stress on the early use of tr. iodine and calomel given alternately. Dr. Siveday of France believes the early use of pulv. ipec. gr. 20, with tart. emetic gr. ss., to be an abortive agent of great efficacy. Among our countrymen I do not find that abortive remedies have been given much credence. Under the head of specific agents may be mentioned sulphurous acid x to xx drops t. i. d., and continued for no longer than two weeks; carbolic acid gtt. i to ii, three or four times a day; tr. iodine gtt. iii to v in milk, t. i. d., or tr. iodine and acid carbol. given together. Calomel in doses of 1-20 to 1-10 gr. every three hours. Ol. terebinth in v to xv drop doses three or four times a day. These medicines have the endorsement of high authority. The third group or antipyretics, are by far the most important as well as most numerous, they are; the various alkaloids of cinchona, calisaya, phenactin, salicin, naphthalin, antipyrine, antifebrin, iod-antipyrine and iod-antifebrin. Of this class, their dose, action and effect, a later speaker will inform you. As to tonics, particularly these applicable to an overwrought and much weakened heart muscle, may be mentioned tr. digitalis, tr. strophanthus, tr. adonis venalis, tr. muschus, tr. cactus grandifloria, tr. nucis vomica, or preparations of strychnia. The dose of any of these must be small and repeated not too often for fear of cumulative action.

The complications of typhoid fever which confront us most often and which really do require, it seems to me some medication are 1st, hemorrhage from bowels; 2nd, delirium and coma vigil; 3d, excessive cough; 4th, peritonitis from contiguity. Hemorrhage may be treated with ex. ergott dr. ss. to dr. one every three or four hours, ergotin gr. i to iii, by mouth or hypodermatically three or four times a day. Ol. terebinth, gtt. x to xv in milk or other vehicle every three or four hours. Plumbic acet., gr. ii to v. Cupric sulph gr. 1-4 to 2-3. Argentic nit. gr. 1-10 to 1-4. Gallic or tannic acids gr. v to xv or tr. ferric chlor. gtt. x to xx, to be given P. R. N. I shall myself strongly recommend the tr. iron. Delirium may be aided by chloral, bromide of potassa, tr. valerian and musk, tr. hyoscyamus, tr. digitalis and morphia. Coma vigil by morphia, chloral or sulphonal. Cough is greatly helped or lessened by simple expectorants containing small quantities of chloroform, ether or Hoffman's anodyne, or by the use of the spray charged with a little morphia, belladonna or cocaine. Peritonitis from perforation seems almost hopeless from the start out, is best treated by opium in some form when it arises from deep ulceration without actual perforation. Opium or morphine in large doses would seem to me the only therapeutic resource.

It would seem then, from the foregoing, that while the complications of typhoid fever are not only amendable in great measures, but actually demand therapeutic interference, the disease itself is more satisfactorily treated, and best conducted to a safe and speedy termi-

nation by measures other than medicinal. At all events such is my individual opinion based on a very fair experience with this disease, both in private and hospital practice.

General Discussion by the Members.

DR. TOWNSEND: There are a few points, which I regret Dr. Hun did not have the time to more fully discuss, one of which is as to the proper diet during the first period of convalescence. We have understood during the *course of the fever* that the fluid diet, as described by Dr. Hun is by far the best and only proper diet. Now comes the important question as to the beginning of the convalescence, what diet is best at this time? In the early beginning of giving *solid* food, with the result in all probability, or tendency at all events toward the result, of bringing about a condition known as relapse. Properly would this bring to mind a question, therefore, with reference to this subject of relapse, as to whether it be due to the change in diet, or whether it be due to a renewal of infection in certain other of the agrinate glands in the vicinity of those already affected. I know in some essays, written by Dr. A. Jacobi on the subject of typhoid fever, especially in regard to the dietetic treatment of its convalescence, that he seems to feel that the relapses are frequently occasioned by the administration of what Dr. Hun terms, and as we well know, "heartly food" too early after this period has begun. I should like to know from Dr. Hun, therefore, in this discussion, as to what would be the best manner of conducting a case during its early convalescence, with reference to the diet. Now, with regard to the discussion of Dr. Hennessey in connection with the subject of antipyretic treatment. It would seem from my experience in numerous cases of typhoid fever that I have seen, that the use of antipyrine in a dose of thirty grains, would be *considerable* of a dose. The doctor limits it, from ten to thirty grains. Antipyrine in thirty grain doses has, in my present experience, never been given, but in even smaller doses, fifteen grains say it has produced symptoms which I should think might possibly become alarming in some instances. With reference to the subject as to the use of antipyrine, as an antipyretic, without any question to my mind, the reduction of temperature by the use of this drug in a number of observed cases, as compared with the use of of antifebrine was, that antipyrine was the more effective. Dr. Ward saw a case with me, where we both observed that antipyrine would hold the temperature down longer than antifebrine. It has done so in almost every case I have tried it in, and I have tried it on quite a number. Another fact in reference to antipyrine is, that I have never seen it hold the temperature down so long as a maximum of twenty-four hours, as suggested by Dr. Hennessey. There is another treatment in this discussion, made by Dr. Perry, which might be of service to some, and that is the administration of calomel in fractional grain doses, and in which, if there be such a thing as the aborting of typhoid fever, which I disbelieve in, it may have possibly ameliorated the symptoms only. Mistaken diagnosis sometimes occasion such belief as cutting short this disease. Calomel hypodermically has been used in France considerably, and I have used it myself, several times with the effect of apparently ameliorating the symptoms. Whether this statement of mine is so or not, I don't

know ; but as to aborting these cases effectually I am quite sure such is not the case. With regard to the discussion of Dr. Ward on alcohol, I must say with him, that no case of typhoid fever can be judged absolutely as to the use or the indiscriminate use of alcohol. It is certain that what quantity will do for one may not do for another, and it is likewise certain also that those accustomed to drinking, at the time they became seriously ill are deserving of a *greater* portion than those that have not the habit of drink. The most diffusible stimulant mentioned has been, in my experience, brandy. This brings to my mind something more, where in the cases of shock from loss of blood, or even in cases of collapse from perforation of the bowels, that ether will often do more good than it (alcohol), and even better, is a solution of caffeine with carbonate of ammonia, which is a quick diffusible stimulant, and which produces definite results within the quickest space of time possible. These all to be used hypodermically. I have likewise with Dr. Ward had the experience of giving within eighteen hours a quart of brandy to patients who are almost in a condition known as articulo mortis, and have seen them revive by such quantities ; and another fact which has proven itself to me, is that the individual, who in a normal condition of affairs could not stand two ounces in the way of liquor, but would become intoxicated, would in a condition of typhoid fever be often capable of taking perhaps four times that amount without showing such a condition.

DR. VAN ALLEN : I will reply to the question of blindness caused by quinine. One of the first cases I think was reported by Dr. Roosa in 1880 or 1881 ; he afterwards in the same number made an additional report in which it seemed to be a matter of doubt as to whether it was caused by quinine. Cases have been reported since, but I think it is regarded rather a result. As to the amount of the dose I do not remember what it was. Where aural results have been found to follow the use of quinine in a great many cases it has been with a comparatively small dose. I remember talking with Dr. Roosa about it and his making the remark he thought about twelve grains of quinine was a pretty large all around dose.

DR. COOK : Most authors in speaking of the use of quinine advocate large doses, twenty to thirty grains once a day, but with me I have for years followed a different course, and it seems to me the beneficial effect is greater by giving quinine in divided doses and producing a depression of the temperature say on an average of one degree. Take a temperature that is 104 1-2 or 105, if you are able to hold it at 103 or 103 1-2 you are putting your patient in safety lines.* I was much surprised that Dr. Hennessey did not speak of quinine as being one of the medicines that is most frequently used for that purpose. I have been in the habit of using quinine in five grain doses, first dose ten grains and repeating every four hours in five grain doses, and I have a positive idea that I have succeeded in that way in controlling the temperature, that is, reducing from one and a half to two degrees. I have tried the experiment of dropping quinine for a time and I found the temperature did increase and then going back to quinine found the temperature decreasing. I have used antipyrine somewhat in typhoid, but not very extensively. The first case I ever

tried it in I had the misfortune to lose my patient, and it was an unpleasant occurrence. It seems to me to have a very depressing effect on the heart action. I think quinine sometimes lessens the pulse rate. I have found the pulse rate in the continued use of quinine in five grain doses every three to four hours to become less frequent, and I have had that occurrence a number of times so much so that it seemed to me quinine did it.

PRESIDENT HUN : In regard to Dr. Townsend's question as to the diet in convalescence, as I said in my paper I had not time to take that up and have not time to take it up now. Of course the diet must be increased by the gradual addition of more solid food. I do not think there is very much danger in pushing the solid food when the patient has an appetite for it and seems to be able to digest it; although it must be given cautiously and in small quantities at first. By the fifth or sixth day after the fever had ceased, the patient can begin to take solid food. In regard to the danger of relapse I do not think a relapse is ever caused by errors in diet. I have seen so many cases where through an error of diet there has been a rise in temperature which lasted forty-eight hours and then fell again, and seen so many cases of relapse occurring where diet has been absolutely fluid that I am inclined to think that the relapse is due to the fact that the typhoid germ is in the system and has not been removed, as relapses so frequently follow those forms of fever where antipyretic treatment has been used. I think there is very little danger of relapses from too much food. As regards the antipyrene treatment, I would like to say a few words in regard to the sponge bath which Dr. Hennessey speaks of as likely to reduce the temperature. In the City hospital in Boston I used sponge baths with cold water for a long time, and I never found the temperature diminished after such a bath more than half a degree in any case. In that same hospital I was ordered to give cold baths to two patients. We gave them systematically, we had the bath close to the bed and both patients died. I have also seen very bad results in cases in consultation in this city where antipryin has been used when without other apparent cause the patients have gone into a condition of collapse, the heart has become feeble and the patients have died. I may be very strongly prejudiced, but I have a strong feeling against the use of antipyretics except in exceptional cases, and then only temporarily. As regards Dr. Curtis's remarks about digitalis and alcohol I cannot agree with him. I think it is most important to stimulate the heart and I think digitalis is a very valuable drug to be given in typhoid fever where the heart is weak, but digitalis is a very slow acting drug. In experimenting in St. Peter's hospital with digitalis, we could not get any effect in much less than thirty-six hours. It is when the collapse has come before we can get digitalis to act that I think brandy or whiskey or ether (sometimes sub-entaneously) is of the greatest importance. After you have got the heart toned up for twenty-four or thirty-six hours the digitalis will begin to act.

DR. PERRY : It has fallen to my lot to outline a portion of this evening's discussion that was not the most satisfactory from the fact that medicinally, the treatment of typhoid fever has fallen, apparently

