

**ARTHUR**

**TIMOTHY SHAY**

GRAPPLING WITH THE  
MONSTER; OR, THE CURSE  
AND THE CURE OF  
STRONG DRINK

Timothy Arthur

**Grappling with the Monster; Or, the  
Curse and the Cure of Strong Drink**

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# T. S. Arthur

## Grappling with the Monster; Or, the Curse and the Cure of Strong Drink

### INTRODUCTION

In preparing this, his latest volume, the author found himself embarrassed from the beginning, because of the large amount of material which came into his hands, and the consequent difficulty of selection and condensation. There is not a chapter which might not have been extended to twice its present length, nor a fact stated, or argument used, which might not have been supplemented by many equally pertinent and conclusive. The extent to which alcohol curses the whole people cannot be shown in a few pages: the sad and terrible history would fill hundreds of volumes. And the same may be said of the curse which this poisonous substance lays upon the souls and bodies of men. Fearful as is the record which will be found in the chapters devoted to the curse of drink, let the reader bear in mind that a thousandth part has not been told.

In treating of the means of reformation, prevention and cure, our effort has been to give to each agency the largest possible credit for what it is doing. There is no movement, organization or work, however broad or limited in its sphere, which has for its object the cure of drunkenness in the individual, or the suppression of the liquor traffic in the State, that is not contributing its measure of service to the great cause every true temperance advocate has at heart; and what we largely need is, toleration for those who do not see with us, nor act with us in our special methods. Let us never forget the Divine admonition—"Forbid him not: for he that is not against us is for us."

Patience, toleration and self-repression are of vital importance in any good cause. If we cannot see with another, let us be careful that, by opposition, we do not cripple him in his work. If we can assist him by friendly counsel to clearer seeing, or, by a careful study of his methods, gain a large efficiency for our own, far more good will be done than by hard antagonism, which rarely helps, and too surely blinds and hinders.

Our book treats of the curse and cure of drunkenness. How much better not to come under the terrible curse! How much better to run no risks where the malady is so disastrous, and the cure so difficult!

To young men who are drifting easily into the dangerous drinking habits of society, we earnestly commend the chapters in which will be found the medical testimony against alcohol, and also the one on "The Growth and Power of Appetite." They will see that it is impossible for a man to use alcoholic drinks regularly without laying the foundation for both physical and mental diseases, and, at the same time, lessening his power to make the best of himself in his life-work; while beyond this lies the awful risk of acquiring an appetite which may enslave, degrade and ruin him, body and soul, as it is degrading and ruining its tens of thousands yearly.

It is sincerely hoped that many may be led by the facts here presented, to grapple with the monster and to thus promote his final overthrow.

## **CHAPTER I**

### **THE MONSTER, STRONG DRINK**

There are two remarkable passages in a very old book, known as the Proverbs of Solomon, which cannot be read too often, nor pondered too deeply. Let us quote them here:

1. "Wine is a mocker, strong drink is raging; and whosoever is deceived thereby is not wise."

2. "Who hath woe? who hath sorrow? who hath contentions? who hath babblings? who hath wounds without cause? who hath, redness of eyes? They that tarry long at the wine; they that go to seek mixed wine. Look not thou upon the wine when it is red, when it giveth his color in the cup, when it moveth itself aright. At the last it biteth like a serpent and stingeth like an adder."

It is many thousands of years since this record was made, and to-day, as in that far distant age of the world, wine is a mocker, and strong drink raging; and still, as then, they who tarry long at the wine; who go to seek mixed wine, discover that, "*at the last,*" it biteth like a serpent and stingeth like an adder.

This mocking and raging! These bitings and stings! These woes and woundings! Alas, for the exceeding bitter cry of their pain, which is heard above every other cry of sorrow and suffering.

#### **ALCOHOL AN ENEMY**

The curse of strong drink! Where shall we begin, where end, or how, in the clear and truthful sentences that wrest conviction from doubt, make plain the allegations we shall bring against an enemy that is sowing disease, poverty, crime and sorrow throughout the land?

Among our most intelligent, respectable and influential people, this enemy finds a welcome and a place of honor. Indeed, with many he is regarded as a friend and treated as such. Every possible opportunity is given him to gain favor in the household and with intimate and valued friends. He is given the amplest confidence and the largest freedom; and he always repays this confidence with treachery and spoliation; too often blinding and deceiving his victims while his work of robbery goes on. He is not only a robber, but a cruel master; and his bondsmen and abject slaves are to be found in hundreds and thousands, and even tens of thousands, of our homes, from the poor dwelling of the day-laborer, up to the palace of the merchant-prince.

#### **PLACE AND POWER IN THE HOUSEHOLD**

Of this fact no one is ignorant; and yet, strange to tell, large numbers of our most intelligent, respectable and influential people continue to smile upon this enemy; to give him place and power in their households, and to cherish him as a friend; but with this singular reserve of thought and purpose, that he is to be trusted just so far and no farther. He is so pleasant and genial, that, for the sake of his favor, they are ready to encounter the risk of his acquiring, through the license they afford, the vantage-ground of a pitiless enemy!

But, it is not only in their social life that the people hold this enemy in favorable regard, and give him the opportunity to hurt and destroy. Our great Republic has entered into a compact with him, and, for a money-consideration, given him the

## **FREEDOM OF THE NATION;**

so that he can go up and down the land at will. And not only has our great Republic done this but the States of which it is composed, with only one or two exceptions, accord to him the same freedom. Still more surprising, in almost every town and city, his right to plunder, degrade, enslave and destroy the people has been established under the safe guarantee of law.

Let us give ourselves to the sober consideration of what we are suffering at his hands, and take measures of defense and safety, instead of burying our heads in the sand, like the foolish, ostrich, while the huntsmen are sweeping down upon us.

## **ENORMOUS CONSUMPTION**

Only those who have given the subject careful consideration have any true idea of the enormous annual consumption, in this country, of spirits, wines and malt liquors. Dr. Hargreaves, in "Our Wasted Resources," gives these startling figures: It amounted in 1870 to 72,425,353 gallons of domestic spirits, 188,527,120 gallons of fermented liquors, 1,441,747 gallons of imported spirits, 9,088,894 gallons of wines, 34,239 gallons of spirituous compounds, and 1,012,754 gallons of ale, beer, etc., or a total of 272,530,107 gallons for 1870, with a total increase of 30,000,000 gallons in 1871, and of 35,000,000 gallons in addition in 1872.

All this in a single year, and at a cost variously estimated at from six to seven hundred millions of dollars! Or, a sum, as statistics tell us, nearly equal to the cost of all the flour, cotton and woolen goods, boots and shoes, clothing, and books and newspapers purchased by the people in the same period of time.

If this were all the cost? If the people wasted no more than seven hundred millions of dollars on these beverages every year, the question of their use would be only one of pecuniary loss or gain. But what farther, in connection with this subject, are we told by statistics? Why, that, in consequence of using these beverages, we have six hundred thousand drunkards; and that of these, sixty thousand die every year. That we have over three hundred murders and four hundred suicides. That over two hundred thousand children are left homeless and friendless. And that at least eighty per cent. of all the crime and pauperism of the land arises from the consumption of this enormous quantity of intoxicating drinks.

In this single view, the question of intemperance assumes a most appalling aspect. The

## **POVERTY AND DESTITUTION**

found in so large a portion of our laboring classes, and their consequent restlessness and discontent, come almost entirely from the waste of substance, idleness and physical incapacity for work, which attend the free use of alcoholic beverages. Of the six or seven hundred millions of dollars paid annually for these beverages, not less than two-thirds are taken out of the earnings of our artisans and laborers, and those who, like them, work for wages.

## **LOSS TO LABOR**

But the loss does not, of course, stop here. The consequent waste of bodily vigor, and the idleness that is ever the sure accompaniment of drinking, rob this class of at least as much more. Total abstinence societies, building associations, and the use of banks for savings, instead of the dram-sellers' banks for losings, would do more for the well-being of our working classes than all the trades-

unions or labor combinations, that ever have or ever will exist. The laboring man's protective union lies in his own good common sense, united with temperance, self-denial and economy. There are very many in our land who know this way; and their condition, as compared with those who know it not, or knowing, will not walk therein, is found to be in striking contrast.

## TAXATION

Besides the wasting drain for drink, and the loss in national wealth, growing out of the idleness and diminished power for work, that invariably follows the use of alcohol in any of its forms, the people are heavily taxed for the repression and punishment of crimes, and the support of paupers and destitute children. A fact or two will give the reader some idea of what this enormous cost must be. In "The Twentieth Annual Report of the Executive Committee of the Prison Association of New York," is this sentence: "There can be no doubt that, of all the proximate sources of crime, the use of intoxicating liquors is the most prolific and the most deadly. Of other causes it may be said that they slay their thousands; of this it may be acknowledged that it slays its tens of thousands. The committee asked for the opinion of the jail officers in nearly every county in the State as to the proportion of commitments due, either directly or indirectly, to strong drink."

The whole number of commitments is given in these words: "Not less than 60,000 to 70,000 [or the sixtieth portion of the inhabitants of the State of New York] human beings—men, women and children—either guilty, or arrested on suspicion of being guilty of crime, pass every year through these institutions." The answers made to the committee by the jail officers, varied from two-thirds as the lowest, to nine-tenths as the highest; and, on taking the average of their figures, it gave seven-eighths as the proportion of commitments for crime directly ascribed to the use of intoxicating drinks!

Taking this as the proportion of those who are made criminals through intemperance, let us get at some estimate of the cost to tax-payers. We find it stated in Tract No. 28, issued by the National Temperance Society, that "a committee was appointed by the Ulster County Temperance Society, in 1861, for the express purpose of ascertaining, from reliable sources, the percentage on every dollar tax paid to the county to support her paupers and criminal justice. The committee, after due examination, came to the conclusion that upwards of sixty cents on the dollar was for the above purpose. This amount was required, *according to law*, to be paid by every tax-payer as a *penalty, or rather as a rum bill*, for allowing the liquor traffic to be carried on in the above county. What is said of Ulster County, may, more or less, if a like examination were entered into, be said of every other county, not only in the State of New York, but in every county in the United States."

From the same tract we take this statement: "In a document published by the Legislature of the State of New York, for 1863, being the report of the Secretary of the State to the Legislature, we have the following statements: 'The whole number of paupers relieved during the same period, was 261,252. During the year 1862, 257,354.' These numbers would be in the ratio of one pauper annually to every fifteen inhabitants throughout the State. In an examination made into the history of those paupers by a competent committee, *seven-eighths of them were reduced* to this low and degraded condition, directly or indirectly, through intemperance."

## CURSING THE POOR

Looking at our laboring classes, with the fact before us, that the cost of the liquor sold annually by retail dealers is equal to nearly \$25 for every man, woman and child in our whole population, and we can readily see why so much destitution is to be found among them. Throwing out those who abstain altogether; the children, and a large proportion of women, and those who take a glass only now and then, and it will be seen that for the rest the average of cost must be more than treble. Among working men who drink the cheaper beverages, the ratio of cost to each cannot fall short of a hundred

dollars a year. With many, drink consumes from a fourth to one-half of their entire earnings. Is it, then, any wonder that so much poverty and suffering are to be found among them?

## **CRIME AND PAUPERISM**

The causes that produce crime and pauperism in our own country, work the same disastrous results in other lands where intoxicants are used. An English writer, speaking of the sad effects of intemperance in Great Britain, says: "One hundred million pounds, which is now annually wasted, is a sum as great as was spent in seven years upon all the railways of the kingdom—in the very heyday of railway projects; a sum so vast, that if saved annually, for seven years, would blot out the national debt!" Another writer says, "that in the year 1865, over £6,000,000, or a tenth part of the whole national revenue, was required to support her paupers." Dr. Lees, of London, in speaking of Ireland, says: "Ireland has been a poor nation from want of capital, and has wanted capital chiefly because the people have preferred swallowing it to saving it." The Rev. G. Holt, chaplain of the Birmingham Workhouse, says: "From my own experience, I am convinced of the accuracy of a statement made by the late governor, that of every one hundred persons admitted, ninety-nine were reduced to this state of humiliation and dependence, either directly or indirectly, through the prevalent and ruinous drinking usages."

Mr. Charles Buxton, M.P., in his pamphlet, "How to Stop Drunkenness," says: "It would not be too much to say that if all drinking of fermented liquors could be done away, crime of every kind would fall to a fourth of its present amount, and the whole tone of moral feeling in the lower order might be indefinitely raised. Not only does this vice produce all kinds of wanton mischief, but it has also a negative effect of great importance. It is the mightiest of all the forces that clog the progress of good. \* \* \* The struggle of the school, the library and the church, all united against the beer-shop and the gin-palace, is but one development of the war between Heaven and hell. It is, in short, intoxication that fills our jails; it is intoxication that fills our lunatic asylums; it is intoxication that fills our work-houses with poor. Were it not for this one cause, pauperism would be nearly extinguished in England."

## **THE BLIGHT EVERYWHERE**

We could go on and fill pages with corroborative facts and figures, drawn from the most reliable sources. But these are amply sufficient to show the extent and magnitude of the curse which the liquor traffic has laid upon our people. Its blight is everywhere—on our industries, on our social life; on our politics, and even on our religion.

And, now, let us take the individual man himself, and see in what manner this treacherous enemy deals with him when he gets him into his power.

## CHAPTER II

### IT CURSES THE BODY

First as to the body. One would suppose, from the marred and scarred, and sometimes awfully disfigured forms and faces of men who have indulged in intoxicating drinks, which are to be seen everywhere and among all classes of society, that there would be no need of other testimony to show that alcohol is an enemy to the body. And yet, strange to say, men of good sense, clear judgment and quick perception in all moral questions and in the general affairs of life, are often so blind, or infatuated here, as to affirm that this substance, alcohol, which they use under the various forms of wine, brandy, whisky, gin, ale or beer, is not only harmless, when taken in moderation—each being his own judge as to what "moderation" means—but actually useful and nutritious!

Until within the last fifteen or twenty years, a large proportion of the medical profession not only favored this view, but made constant prescription of alcohol in one form or another, the sad results of which too often made their appearance in exacerbations of disease, or in the formation of intemperate habits among their patients. Since then, the chemist and the physiologist have subjected alcohol to the most rigid tests, carried on often for years, and with a faithfulness that could not be satisfied with guess work, or inference, or hasty conclusion.

#### ALCOHOL NOT A FOOD AND OF DOUBTFUL USE AS A MEDICINE

As a result of these carefully-conducted and long-continued examinations and experiments, the medical profession stands to-day almost as a unit against alcohol; and makes solemn public declaration to the people that it "is not shown to have a definite food value by any of the usual methods of chemical analysis or physiological investigations;" and that as a medicine its range is very limited, admitting often of a substitute, and that it should never be taken unless prescribed by a physician.

Reports of these investigations to which we have referred have appeared, from time to time, in the medical journals of Europe and America, and their results are now embodied in many of the standard and most reliable treatises and text-books of the medical profession.

In this chapter we shall endeavor to give our readers a description of the changes and deteriorations which take place in the blood, nerves, membranes, tissues and organs, in consequence of the continued introduction of alcohol into the human body; and in doing so, we shall quote freely from medical writers, in order that our readers may have the testimony before them in its directest form, and so be able to judge for themselves as to its value.

#### DIGESTION

And here, in order to give those who are not familiar with, the process of digestion, a clear idea of that important operation, and the effect produced when alcohol is taken with food, we quote from the lecture of an English physician, Dr. Henry Monroe, on "The Physiological Action of Alcohol." He says:

"Every kind of substance employed by man as food consists of sugar, starch, oil and glutinous matters, mingled together in various proportions; these are designed for the support of the animal frame. The glutinous principles of food—*fibrine*, *albumen* and *casein*—are employed to build up the structure; while the *oil*, *starch* and *sugar* are chiefly used to generate heat in the body.

"The first step of the digestive process is the breaking up of the food in the mouth by means of the jaws and teeth. On this being done, the saliva, a viscid liquor, is poured into the mouth from the salivary glands, and as it mixes with the food, it performs a very important part in the operation of

digestion, rendering the starch of the food soluble, and gradually changing it into a sort of sugar, after which the other principles become more miscible with it. Nearly a pint of saliva is furnished every twenty-four hours for the use of an adult. When the food has been masticated and mixed with the saliva, it is then passed into the stomach, where it is acted upon by a juice secreted by the filaments of that organ, and poured into the stomach in large quantities whenever food comes in contact with its mucous coats. It consists of a dilute acid known to the chemists as hydrochloric acid, composed of hydrogen and chlorine, united together in certain definite proportions. The gastric juice contains, also, a peculiar organic-ferment or decomposing substance, containing nitrogen—something of the nature of yeast—termed *pepsine*, which is easily soluble in the acid just named. That gastric juice acts as a simple chemical solvent, is proved by the fact that, after death, it has been known to dissolve the stomach itself."

### **ALCOHOL RETARDS DIGESTION**

"It is an error to suppose that, after a good dinner, a glass of spirits or beer assists digestion; or that any liquor containing alcohol—even bitter beer—can in any way assist digestion. Mix some bread and meat with gastric juice; place them in a phial, and keep that phial in a sand-bath at the slow heat of 98 degrees, occasionally shaking briskly the contents to imitate the motion of the stomach; you will find, after six or eight hours, the whole contents blended into one pultaceous mass. If to another phial of food and gastric juice, treated in the same way, I add a glass of pale ale or a quantity of alcohol, at the end of seven or eight hours, or even some days, the food is scarcely acted upon at all. This is a fact; and if you are led to ask why, I answer, because alcohol has the peculiar power of chemically affecting or decomposing the gastric juice by precipitating one of its principal constituents, viz., pepsine, rendering its solvent properties much less efficacious. Hence alcohol can not be considered either as food or as a solvent for food. Not as the latter certainly, for it refuses to act with the gastric juice.

"It is a remarkable fact,' says Dr. Dundas Thompson, 'that alcohol, when added to the digestive fluid, produces a white precipitate, so that the fluid is no longer capable of digesting animal or vegetable matter.' 'The use of alcoholic stimulants,' say Drs. Todd and Bowman, 'retards digestion by coagulating the pepsine, an essential element of the gastric juice, and thereby interfering with its action. Were it not that wine and spirits are rapidly absorbed, the introduction of these into the stomach, in any quantity, would be a complete bar to the digestion of food, as the pepsine would be precipitated from the solution as quickly as it was formed by the stomach.' Spirit, in any quantity, as a dietary adjunct, is pernicious on account of its antiseptic qualities, which resist the digestion of food by the absorption of water from its particles, in direct antagonism to chemical operation."

### **ITS EFFECT ON THE BLOOD**

Dr. Richardson, in his lectures on alcohol, given both in England and America, speaking of the action of this substance on the blood after passing from the stomach, says:

"Suppose, then, a certain measure of alcohol be taken into the stomach, it will be absorbed there, but, previous to absorption, it will have to undergo a proper degree of dilution with water, for there is this peculiarity respecting alcohol when it is separated by an animal membrane from a watery fluid like the blood, that it will not pass through the membrane until it has become charged, to a given point of dilution, with water. It is itself, in fact, *so greedy for water, it will pick it up from watery textures, and deprive them of it until, by its saturation, its power of reception is exhausted*, after which it will diffuse into the current of circulating fluid."

It is this power of absorbing water from every texture with which alcoholic spirits comes in contact, that creates the burning thirst of those who freely indulge in its use. Its effect, when it reaches the circulation, is thus described by Dr. Richardson:

"As it passes through the circulation of the lungs it is exposed to the air, and some little of it, raised into vapor by the natural heat, is thrown off in expiration. If the quantity of it be large, this loss may be considerable, and the odor of the spirit may be detected in the expired breath. If the quantity be small, the loss will be comparatively little, as the spirit will be held in solution by the water in the blood. After it has passed through the lungs, and has been driven by the left heart over the arterial circuit, it passes into what is called the minute circulation, or the structural circulation of the organism. The arteries here extend into very small vessels, which are called arterioles, and from these infinitely small vessels spring the equally minute radicals or roots of the veins, which are ultimately to become the great rivers bearing the blood back to the heart. In its passage through this minute circulation the alcohol finds its way to every organ. To this brain, to these muscles, to these secreting or excreting organs, nay, even into this bony structure itself, it moves with the blood. In some of these parts which are not excreting, it remains for a time diffused, and in those parts where there is a large percentage of water, it remains longer than in other parts. From some organs which have an open tube for conveying fluids away, as the liver and kidneys, it is thrown out or eliminated, and in this way a portion of it is ultimately removed from the body. The rest passing round and round with the circulation, is probably decomposed and carried off in new forms of matter.

"When we know the course which the alcohol takes in its passage through the body, from the period of its absorption to that of its elimination, we are the better able to judge what physical changes it induces in the different organs and structures with which it comes in contact. It first reaches the blood; but, as a rule, the quantity of it that enters is insufficient to produce any material effect on that fluid. If, however, the dose taken be poisonous or semi-poisonous, then even the blood, rich as it is in water—and it contains seven hundred and ninety parts in a thousand—is affected. The alcohol is diffused through this water, and there it comes in contact with the other constituent parts, with the fibrine, that plastic substance which, when blood is drawn, clots and coagulates, and which is present in the proportion of from two to three parts in a thousand; with the albumen which exists in the proportion of seventy parts; with the salts which yield about ten parts; with the fatty matters; and lastly, with those minute, round bodies which float in myriads in the blood (which were discovered by the Dutch philosopher, Leuwenhock, as one of the first results of microscopical observation, about the middle of the seventeenth century), and which are called the blood globules or corpuscles. These last-named bodies are, in fact, cells; their discs, when natural, have a smooth outline, they are depressed in the centre, and they are red in color; the color of the blood being derived from them. We have discovered in recent years that there exist other corpuscles or cells in the blood in much smaller quantity, which are called white cells, and these different cells float in the blood-stream within the vessels. The red take the centre of the stream; the white lie externally near the sides of the vessels, moving less quickly. Our business is mainly with the red corpuscles. They perform the most important functions in the economy; they absorb, in great part, the oxygen which we inhale in breathing, and carry it to the extreme tissues of the body; they absorb, in great part, the carbonic acid gas which is produced in the combustion of the body in the extreme tissues, and bring that gas back to the lungs to be exchanged for oxygen there; in short, they are the vital instruments of the circulation.

"With all these parts of the blood, with the water, fibrine, albumen, salts, fatty matter and corpuscles, the alcohol comes in contact when it enters the blood, and, if it be in sufficient quantity, it produces disturbing action. I have watched this disturbance very carefully on the blood corpuscles; for, in some animals we can see these floating along during life, and we can also observe them from men who are under the effects of alcohol, by removing a speck of blood, and examining it with the microscope. The action of the alcohol, when it is observable, is varied. It may cause the corpuscles to run too closely together, and to adhere in rolls; it may modify their outline, making the clear-defined,

smooth, outer edge irregular or crenate, or even starlike; it may change the round corpuscle into the oval form, or, in very extreme cases, it may produce what I may call a truncated form of corpuscles, in which the change is so great that if we did not trace it through all its stages, we should be puzzled to know whether the object looked at were indeed a blood-cell. All these changes are due to the action of the spirit upon the water contained in the corpuscles; upon the capacity of the spirit to extract water from them. During every stage of modification of corpuscles thus described, their function to absorb and fix gases is impaired, and when the aggregation of the cells, in masses, is great, other difficulties arise, for the cells, united together, pass less easily than they should through the minute vessels of the lungs and of the general circulation, and impede the current, by which local injury is produced.

"A further action upon the blood, instituted by alcohol in excess, is upon the fibrine or the plastic colloidal matter. On this the spirit may act in two different ways, according to the degree in which it affects the water that holds the fibrine in solution. It may fix the water with the fibrine, and thus destroy the power of coagulation; or it may extract the water so determinately as to produce coagulation."

### **ON THE MINUTE CIRCULATION**

The doctor then goes on to describe the minute circulation through which the constructive material in the blood is distributed to every part of the body. "From this distribution of blood in these minute vessels," he says, "the structure of organs derive their constituent parts; through these vessels brain matter, muscle, gland, membrane, are given out from the blood by a refined process of selection of material, which, up to this time, is only so far understood as to enable us to say that it exists. The minute and intermediate vessels are more intimately connected than any other part with the construction and with the function of the living matter of which the body is composed. Think you that this mechanism is left uncontrolled? No; the vessels, small as they are, are under distinct control. Infinitely refined in structure, they nevertheless have the power of contraction and dilatation, which power is governed by nervous action of a special kind."

Now, there are certain chemical agents, which, by their action on the nerves, have the power to paralyze and relax these minute blood-vessels, at their extreme points. "The whole series of nitrates," says Dr. Richardson, "possess this power; ether possesses it; but the great point I wish to bring forth is, that the substance we are specially dealing with, alcohol, possesses the self-same power. By this influence it produces all those peculiar effects which in every-day life are so frequently illustrated."

### **PARALYZES THE MINUTE BLOOD-VESSELS**

It paralyzes the minute blood-vessels, and allows them to become dilated with the flowing blood.

"If you attend a large dinner party, you will observe, after the first few courses, when the wine is beginning to circulate, a progressive change in some of those about you who have taken wine. The face begins to get flushed, the eye brightens, and the murmur of conversation becomes loud. What is the reason of that flushing of the countenance? It is the same as the flush from blushing, or from the reaction of cold, or from the nitrite of amyl. It is the dilatation of vessels following upon the reduction of nervous control, which reduction has been induced by the alcohol. In a word, the first stage, the stage of vascular excitement from alcohol, has been established."

## **HEART DISTURBANCE**

"The action of the alcohol extending so far does not stop there. With the disturbance of power in the extreme vessels, more disturbance is set up in other organs, and the first organ that shares in it is the heart. With each beat of the heart a certain degree of resistance is offered by the vessels when their nervous supply is perfect, and the stroke of the heart is moderated in respect both to tension and to time. But when the vessels are rendered relaxed, the resistance is removed, the heart begins to run quicker, like a watch from which the pallets have been removed, and the heart-stroke, losing nothing in force, is greatly increased in frequency, with a weakened recoil stroke. It is easy to account, in this manner, for the quickened heart and pulse which accompany the first stage of deranged action from alcohol, and you will be interested to know to what extent this increase of vascular action proceeds. The information on this subject is exceedingly curious and important."

"The stage of primary excitement of the circulation thus induced lasts for a considerable time, but at length the heart flags from its overaction, and requires the stimulus of more spirit to carry it on in its work. Let us take what we may call a moderate amount of alcohol, say two ounces by volume, in form of wine, or beer, or spirits. What is called strong sherry or port may contain as much as twenty-five per cent. by volume. Brandy over fifty; gin, thirty-eight; rum, forty-eight; whisky, forty-three; vin ordinaire, eight; strong ale, fourteen; champagne, ten to eleven; it matters not which, if the quantity of alcohol be regulated by the amount present in the liquor imbibed. When we reach the two ounces, a distinct physiological effect follows, leading on to that first stage of excitement with which we are now conversant. The reception of the spirit arrested at this point, there need be no important mischief done to the organism; but if the quantity imbibed be increased, further changes quickly occur. We have seen that all the organs of the body are built upon the vascular structures, and therefore it follows that a prolonged paralysis of the minute circulation must of necessity lead to disturbance in other organs than the heart."

## **OTHER ORGANS INVOLVED**

"By common observation, the flush seen on the cheek during the first stage of alcoholic excitation, is presumed to extend merely to the parts actually exposed to view. It cannot, however, be too forcibly impressed that the condition is universal in the body. If the lungs could be seen, they, too, would be found with their vessels injected; if the brain and spinal cord could be laid open to view, they would be discovered in the same condition; if the stomach, the liver, the spleen, the kidneys or any other vascular organs or parts could be exposed, the vascular engorgement would be equally manifest. In the lower animals, I have been able to witness this extreme vascular condition in the lungs, and there are here presented to you two drawings from nature, showing, one the lungs in a natural state of an animal killed by a sudden blow, the other the lungs of an animal killed equally suddenly, but at a time when it was under the influence of alcohol. You will see, as if you were looking at the structures themselves, how different they are in respect to the blood which they contained, how intensely charged with blood is the lung in which the vessels had been paralyzed by the alcoholic Spirit."

## **EFFECT ON THE BRAIN**

"I once had the unusual, though unhappy, opportunity of observing the same phenomenon in the brain structure of a man, who, in a paroxysm of alcoholic excitement, decapitated himself under the wheel of a railway carriage, and whose brain was instantaneously evolved from the skull by the crash. The brain itself, entire, was before me within three minutes after the death. It exhaled the odor

of spirit most distinctly, and its membranes and minute structures were vascular in the extreme. It looked as if it had been recently injected with vermilion. The white matter of the cerebrum, studded with red points, could scarcely be distinguished, when it was incised, by its natural whiteness; and the pia-mater, or internal vascular membrane covering the brain, resembled a delicate web of coagulated red blood, so tensely were its fine vessels engorged.

"I should add that this condition extended through both the larger and the smaller brain, the cerebrum and cerebellum, but was not so marked in the medulla or commencing portion of the spinal cord."

## THE SPINAL CORD AND NERVES

"The action of alcohol continued beyond the first stage, the function of the spinal cord is influenced. Through this part of the nervous system we are accustomed, in health, to perform automatic acts of a mechanical kind, which proceed systematically even when we are thinking or speaking on other subjects. Thus a skilled workman will continue his mechanical work perfectly, while his mind is bent on some other subject; and thus we all perform various acts in a purely automatic way, without calling in the aid of the higher centres, except something more than ordinary occurs to demand their service, upon which we think before we perform. Under alcohol, as the spinal centres become influenced, these pure automatic acts cease to be correctly carried on. That the hand may reach any object, or the foot be correctly planted, the higher intellectual centre must be invoked to make the proceeding secure. There follows quickly upon this a deficient power of co-ordination of muscular movement. The nervous control of certain of the muscles is lost, and the nervous stimulus is more or less enfeebled. The muscles of the lower lip in the human subject usually fail first of all, then the muscles of the lower limbs, and it is worthy of remark that the extensor muscles give way earlier than the flexors. The muscles themselves, by this time, are also failing in power; they respond more feebly than is natural to the nervous stimulus; they, too, are coming under the depressing influence of the paralyzing agent, their structure is temporarily deranged, and their contractile power reduced.

"This modification of the animal functions under alcohol, marks the second degree of its action. In young subjects, there is now, usually, vomiting with faintness, followed by gradual relief from the burden of the poison."

## EFFECT ON THE BRAIN CENTRES

"The alcoholic spirit carried yet a further degree, the cerebral or brain centres become influenced; they are reduced in power, and the controlling influences of will and of judgment are lost. As these centres are unbalanced and thrown into chaos, the rational part of the nature of the man gives way before the emotional, passional or organic part. The reason is now off duty, or is fooling with duty, and all the mere animal instincts and sentiments are laid atrociously bare. The coward shows up more craven, the braggart more boastful, the cruel more merciless, the untruthful more false, the carnal more degraded. '*In vino veritas*' expresses, even, indeed, to physiological accuracy, the true condition. The reason, the emotions, the instincts, are all in a state of carnival, and in chaotic feebleness.

"Finally, the action of the alcohol still extending, the superior brain centres are overpowered; the senses are beclouded, the voluntary muscular prostration is perfected, sensibility is lost, and the body lies a mere log, dead by all but one-fourth, on which alone its life hangs. The heart still remains true to its duty, and while it just lives it feeds the breathing power. And so the circulation and the respiration, in the otherwise inert mass, keeps the mass within the bare domain of life until the poison begins to pass away and the nervous centres to revive again. It is happy for the inebriate that, as a

rule, the brain fails so long before the heart that he has neither the power nor the sense to continue his process of destruction up to the act of death of his circulation. Therefore he lives to die another day.

"Such is an outline of the primary action of alcohol on those who may be said to be unaccustomed to it, or who have not yet fallen into a fixed habit of taking it: For a long time the organism will bear these perversions of its functions without apparent injury, but if the experiment be repeated too often and too long, if it be continued after the term of life when the body is fully developed, when the elasticity of the membranes and of the blood-vessels is lessened, and when the tone of the muscular fibre is reduced, then organic series of structural changes, so characteristic of the persistent effects of spirit, become prominent and permanent. Then the external surface becomes darkened and congested, its vessels, in parts, visibly large; the skin becomes blotched, the proverbial red nose is defined, and those other striking vascular changes which disfigure many who may probably be called moderate alcoholics, are developed. These changes, belonging, as they do, to external surfaces, come under direct observation; they are accompanied with certain other changes in the internal organs, which we shall show to be more destructive still."

## CHAPTER III

### IT CURSES THE BODY.—CONTINUED

We have quoted thus freely in the preceding chapter, in order that the intelligent and thoughtful reader, who is really seeking for the truth in regard to the physical action of alcohol, may be able to gain clear impressions on the subject. The specific changes wrought by this substance on the internal organs are of a most serious character, and should be well understood by all who indulge habitually in its use.

#### EFFECT ON THE MEMBRANES

The parts which first suffer from alcohol are those expansions of the body which the anatomists call the membranes. "The skin is a membranous envelope. Through the whole of the alimentary surface, from the lips downward, and through the bronchial passages to their minutest ramifications, extends the mucous membrane. The lungs, the heart, the liver, the kidneys are folded in delicate membranes, which can be stripped easily from these parts. If you take a portion of bone, you will find it easy to strip off from it a membranous sheath or covering; if you examine a joint, you will find both the head and the socket lined with membranes. The whole of the intestines are enveloped in a fine membrane called *peritoneum*. All the muscles are enveloped in membranes, and the fasciculi, or bundles and fibres of muscles, have their membranous sheathing. The brain and spinal cord are enveloped in three membranes; one nearest to themselves, a pure vascular structure, a net-work of blood-vessels; another, a thin serous structure; a third, a strong fibrous structure. The eyeball is a structure of colloidal humors and membranes, and of nothing else. To complete the description, the minute structures of the vital organs are enrolled in membranous matter."

These membranes are the filters of the body. "In their absence there could be no building of structure, no solidification of tissue, nor organic mechanism. Passive themselves, they, nevertheless, separate all structures into their respective positions and adaptations."

#### MEMBRANOUS DETERIORATIONS

In order to make perfectly clear to the reader's mind the action and use of these membranous expansions, and the way in which alcohol deteriorates them, and obstructs their work, we quote again from Dr. Richardson:

"The animal receives from the vegetable world and from the earth the food and drink it requires for its sustenance and motion. It receives colloidal food for its muscles: combustible food for its motion; water for the solution of its various parts; salt for constructive and other physical purposes. These have all to be arranged in the body; and they are arranged by means of the membranous envelopes. Through these membranes nothing can pass that is not, for the time, in a state of aqueous solution, like water or soluble salts. Water passes freely through them, salts pass freely through them, but the constructive matter of the active parts that is colloidal does not pass; it is retained in them until it is chemically decomposed into the soluble type of matter. When we take for our food a portion of animal flesh, it is first resolved, in digestion, into a soluble fluid before it can be absorbed; in the blood it is resolved into the fluid colloidal condition; in the solids it is laid down within the membranes into new structure, and when it has played its part, it is digested again, if I may so say, into a crystalloidal soluble substance, ready to be carried away and replaced by addition of new matter, then it is dialysed or passed through, the membranes into the blood, and is disposed of in the excretions.

"See, then, what an all-important part these membranous structures play in the animal life. Upon their integrity all the silent work of the building up of the body depends. If these membranes are rendered too porous, and let out the colloidal fluids of the blood—the albumen, for example—the body so circumstanced, dies; dies as if it were slowly bled to death. If, on the contrary, they become condensed or thickened, or loaded with foreign material, then they fail to allow the natural fluids to pass through them. They fail to dialyse, and the result is, either an accumulation of the fluid in a closed cavity, or contraction of the substance inclosed within the membrane, or dryness of membrane in surfaces that ought to be freely lubricated and kept apart. In old age we see the effects of modification of membrane naturally induced; we see the fixed joint, the shrunken and feeble muscle, the dimmed eye, the deaf ear, the enfeebled nervous function.

"It may possibly seem, at first sight, that I am leading immediately away from the subject of the secondary action of alcohol. It is not so. I am leading directly to it. Upon all these membranous structures alcohol exerts a direct perversion of action. It produces in them a thickening, a shrinking and an inactivity that reduces their functional power. That they may work rapidly and equally, they require to be at all times charged with water to saturation. If, into contact with them, any agent is brought that deprives them of water, then is their work interfered with; they cease to separate the saline constituents properly; and, if the evil that is thus started, be allowed to continue, they contract upon their contained matter in whatever organ it may be situated, and condense it.

"In brief, under the prolonged influence of alcohol those changes which take place from it in the blood corpuscles, and which have already been described, extend to the other organic parts, involving them in structural deteriorations, which are always dangerous, and are often ultimately fatal."

### **ACTION OF ALCOHOL ON THE STOMACH**

Passing from the effect of alcohol upon the membranes, we come to its action on the stomach. That it impairs, instead of assisting digestion, has already been shown in the extract from Dr. Monroe, given near the commencement of the preceding chapter. A large amount of medical testimony could be quoted in corroboration, but enough has been educed. We shall only quote Dr. Richardson on "Alcoholic Dyspepsia:"

"The stomach, unable to produce, in proper quantity, the natural digestive fluid, and also unable to absorb the food which it may imperfectly digest, is in constant anxiety and irritation. It is oppressed with the sense of nausea; it is oppressed with the sense of emptiness and prostration; it is oppressed with a sense of distention; it is oppressed with a loathing for food, and it is teased with a craving for more drink. Thus there is engendered, a permanent disorder which, for politeness' sake, is called dyspepsia, and for which different remedies are often sought but never found. Antibilious pills—whatever they may mean—Seidlitz powders, effervescing waters, and all that pharmacopoeia of aids to further indigestion, in which the afflicted who nurse their own diseases so liberally and innocently indulge, are tried in vain. I do not strain a syllable when I state that the worst forms of confirmed indigestion originate in the practice that is here explained. By this practice all the functions are vitiated, the skin at one moment is flushed and perspiring, and at the next moment it is pale, cold and clammy, while every other secreting structure is equally disarranged."

### **TIC-DOULOUREUX AND SCIATICA**

Nervous derangements follow as a matter of course, for the delicate membranes which envelope and immediately surround the nervous cords, are affected by the alcohol more readily than the coarser membranous textures of other parts of the body, and give rise to a series of troublesome conditions, which are too often attributed to other than the true causes. Some of these are thus described: "The perverted condition of the membranous covering of the nerves gives rise to pressure within the sheath

of the nerve, and to pain as a consequence. To the pain thus excited the term neuralgia is commonly applied, or 'tic;' or, if the large nerve running down the thigh be the seat of the pain, 'sciatica.' Sometimes this pain is developed as a toothache. It is pain commencing, in nearly every instance, at some point where a nerve is inclosed in a bony cavity, or where pressure is easily excited, as at the lower jawbone near the centre of the chin, or at the opening in front of the lower part of the ear, or at the opening over the eyeball in the frontal bone."

### **DEGENERATION OF THE LIVER**

The organic deteriorations which follow the long-continued use of alcoholic drinks are often of a serious and fatal character. The same author says: "The organ of the body, that, perhaps, the most frequently undergoes structural changes from alcohol, is the *liver*. The capacity of this organ for holding active substances in its cellular parts, is one of its marked physiological distinctions. In instances of poisoning by arsenic, antimony, strychnine and other poisonous compounds, we turn to the liver, in conducting our analyses, as if it were the central depot of the foreign matter. It is, practically, the same in respect to alcohol. The liver of the confirmed alcoholic is, probably, never free from the influence of the poison; it is too often saturated with it. The effect of the alcohol upon the liver is upon the minute membranous or capsular structure of the organ, upon which, it acts to prevent the proper dialysis and free secretion. The organ, at first, becomes large from the distention of its vessels, the surcharge of fluid matter and the thickening of tissue. After a time, there follows contraction of membrane, and slow shrinking of the whole mass of the organ in its cellular parts. Then the shrunken, hardened, roughened mass is said to be 'hob-nailed,' a common, but expressive term. By the time this change occurs, the body of him in whom it is developed is usually dropsical in its lower parts, owing to the obstruction offered to the returning blood by the veins, and his fate is sealed.... Again, under an increase of fatty substance in the body, the structure of the liver may be charged with, fatty cells, and undergo what is technically designated fatty degeneration."

### **HOW THE KIDNEYS SUFFER**

"The kidneys, also, suffer deterioration. Their minute structures undergo fatty modification; their vessels lose their due elasticity of power of contraction; or their membranes permit to pass through them the albumen from the blood. This last condition reached, the body loses power as if it were being gradually drained even of its blood."

### **CONGESTION OF THE LUNGS**

"The vessels of the lungs are easily relaxed by alcohol; and as they, of all parts, are most exposed to vicissitudes of heat and cold, they are readily congested when, paralyzed by the spirit, they are subjected to the effects of a sudden fall of atmospheric temperature. Thus, the suddenly fatal congestions of lungs which so easily befall the confirmed alcoholic during the severe winter seasons."

### **ORGANIC DETERIORATIONS OF THE HEART**

The heart is one of the greatest sufferers from alcohol. Quoting again from Dr. Richardson:

"The membranous structures which envelope and line the organ are changed in quality, are thickened, rendered cartilaginous and even calcareous or bony. Then the valves, which are made up of folds of membrane, lose their suppleness, and what is called valvular disease is permanently established. The coats of the great blood-vessel leading from the heart, the aorta, share, not

unfrequently, in the same changes of structure, so that the vessel loses its elasticity and its power to feed the heart by the recoil from its distention, after the heart, by its stroke, has filled it with blood.

"Again, the muscular structure of the heart fails, owing to degenerative changes in its tissue. The elements of the muscular fibre are replaced by fatty cells; or, if not so replaced, are themselves transferred into a modified muscular texture in which the power of contraction is greatly reduced.

"Those who suffer from these organic deteriorations of the central and governing organ of the circulation of the blood learn the fact so insidiously, it hardly breaks upon them until the mischief is far advanced. They are, for years, conscious of a central failure of power from slight causes, such as overexertion, trouble, broken rest, or too long abstinence from food. They feel what they call a 'sinking,' but they know that wine or some other stimulant will at once relieve the sensation. Thus they seek to relieve it until at last they discover that the remedy fails. The jaded, overworked, faithful heart will bear no more; it has run its course, and, the governor of the blood-streams broken, the current either overflows into the tissues, gradually damming up the courses, or under some slight shock or excess of motion, ceases wholly at the centre."

### EPILEPSY AND PARALYSIS

Lastly, the brain and spinal cord, and all the nervous matter, become, under the influence of alcohol, subject alike to organic deterioration. "The membranes enveloping the nervous substance undergo thickening; the blood-vessels are subjected to change of structure, by which their resistance and resiliency is impaired; and the true nervous matter is sometimes modified, by softening or shrinking of its texture, by degeneration of its cellular structure or by interposition of fatty particles. These deteriorations of cerebral and spinal matter give rise to a series of derangements, which show themselves in the worst forms of nervous diseases—epilepsy; paralysis, local or general; insanity."

We have quoted thus largely from Dr. Richardson's valuable lectures, in order that our readers may have an intelligent comprehension of this most important subject. It is because the great mass of the people are ignorant of the real character of the effects produced on the body by alcohol that so many indulge in its use, and lay the foundation for troublesome, and often painful and fatal diseases in their later years.

In corroboration of Dr. Richardson's testimony against alcohol, we will, in closing this chapter, make a few quotations from other medical authorities.

### FARTHER MEDICAL TESTIMONY

Dr. Ezra M. Hunt says: "The capacity of the alcohols for impairment of functions and the initiation and promotion of organic lesions in vital parts, is unsurpassed by any record in the whole range of medicine. *The facts as to this are so indisputable, and so far granted by the profession, as to be no longer debatable.* Changes in stomach and liver, in kidneys and lungs, in the blood-vessels to the minutest capillary, and in the blood to the smallest red and white blood disc disturbances of secretion, fibroid and fatty degenerations in almost every organ, impairment of muscular power, impressions so profound on both nervous systems as to be often toxic—these, and such as these, are the oft manifested results. And these are not confined to those called intemperate."

Professor Youmans says: "It is evident that, so far from being the conservator of health, alcohol is an active and powerful cause of disease, interfering, as it does, with the respiration, the circulation and the nutrition; now, is any other result possible?"

Dr. F.R. Lees says: "That alcohol should contribute to the fattening process under certain conditions, and produce in drinkers fatty degeneration of the blood, follows, as a matter of course, since, on the one hand, we have an agent that *retains waste* matter by lowering the nutritive and excretory functions, and on the other, a *direct poisoner* of the vesicles of the vital stream."

Dr. Henry Monroe says: "There is no kind of tissue, whether healthy or morbid, that may not undergo fatty degeneration; and there is no organic disease so troublesome to the medical man, or so difficult of cure. If, by the aid of the microscope, we examine a very fine section of muscle taken from a person in good health, we find the muscles firm, elastic and of a bright red color, made up of parallel fibres, with beautiful crossings or striae; but, if we similarly examine the muscle of a man who leads an idle, sedentary life, and indulges in intoxicating drinks, we detect, at once, a pale, flabby, inelastic, oily appearance. Alcoholic narcotization appears to produce this peculiar conditions of the tissues *more than any other agent with which we are acquainted*. 'Three-quarters of the chronic illness which the medical man has to treat,' says Dr. Chambers, 'are occasioned by this disease.' The eminent French analytical chemist, Lecanu, found as much as one hundred and seventeen parts of fat in one thousand parts of a drunkard's blood, the highest estimate of the quantity in health being eight and one-quarter parts, while the ordinary quantity is not more than two or three parts, so that the blood of the drunkard contains forty times in excess of the ordinary quantity."

Dr. Hammond, who has written, in partial defense of alcohol as containing a food power, says: "When I say that it, of all other causes, *is most prolific* in exciting derangements of the brain, the spinal cord and the nerves, I make a statement which my own experience shows to be correct."

Another eminent physician says of alcohol: "It substitutes suppuration for growth. \* \* It helps time to produce the effects of age; and, in a word, is the genius of degeneration."

Dr. Monroe, from whom we have already quoted, says: "Alcohol, taken in small quantities, or largely diluted, as in the form of beer, causes the stomach gradually to lose its tone, and makes it dependent upon artificial stimulus. Atony, or want of tone of the stomach, gradually supervenes, and incurable disorder of health results. \* \* \* Should a dose of alcoholic drink be taken daily, the heart will very often become hypertrophied, or enlarged throughout. Indeed, it is painful to witness how *many* persons are actually laboring under disease of the heart, owing chiefly to the use of alcoholic liquors."

Dr. T.K. Chambers, physician to the Prince of Wales, says: "Alcohol is really the most ungenerous diet there is. It impoverishes the blood, and there is no surer road to that degeneration of muscular fibre so much to be feared; and in heart disease it is more especially hurtful, by quickening the beat, causing capillary congestion and irregular circulation, and thus mechanically inducing dilatation."

Sir Henry Thompson, a distinguished surgeon, says: "Don't take your daily wine under any pretext of its doing you good. Take it frankly as a luxury—one which must be paid for, by some persons very lightly, by some at a high price, *but always to be paid for*. And, mostly, some loss of health, or of mental power, or of calmness of temper, or of judgment, is the price."

Dr. Charles Jewett says: "The late Prof. Parks, of England, in his great work on Hygiene, has effectually disposed of the notion, long and very generally entertained, that alcohol is a valuable prophylactic where a bad climate, bad water and other conditions unfavorable to health, exist; and an unfortunate experiment with the article, in the Union army, on the banks of the Chickahominy, in the year 1863, proved conclusively that, instead of guarding the human constitution against the influence of agencies hostile to health, its use gives to them additional force. The medical history of the British army in India teaches the same lesson."

But why present farther testimony? Is not the evidence complete? To the man who values good health; who would not lay the foundation for disease and suffering in his later years, we need not offer a single additional argument in favor of entire abstinence from alcoholic drinks. He will eschew them as poisons.

## CHAPTER IV

### IT CURSES THE SOUL

The physical disasters that follow the continued use of intoxicating beverages are sad enough, and terrible enough; but the surely attendant mental, moral and spiritual disasters are sadder and more terrible still. If you disturb the healthy condition of the brain, which is the physical organ through which the mind acts, you disturb the mind. It will not have the same clearness of perception as before; nor have the same rational control over the impulses and passions.

In what manner alcohol deteriorates the body and brain has been shown in the two preceding chapters. In this one we purpose showing how the curse goes deeper than the body and brain, and involves the whole man—morally and spiritually, as well as physically.

#### HEAVENLY ORDER IN THE BODY

In order to understand a subject clearly, certain general laws, or principles, must be seen and admitted. And here we assume, as a general truth, that health in the human body is normal heavenly order on the physical plane of life, and that any disturbance of that order exposes the man to destructive influences, which are evil and infernal in their character. Above the natural and physical plane, and resting upon it, while man lives in this world, is the mental and spiritual plane, or degree of life. This degree is in heavenly order when the reason is clear, and the appetites and passions under its wise control. But, if, through any cause, this fine equipoise is disturbed, or lost, then a way is opened for the influx of more subtle evil influences than such as invade the body, because they have power to act upon the reason and the passions, obscuring the one and inflaming the others.

#### MENTAL DISTURBANCES

We know how surely the loss of bodily health results in mental disturbance. If the seat of disease be remote from the brain, the disturbance is usually slight; but it increases as the trouble comes nearer and nearer to that organ, and shows itself in multiform ways according to character, temperament or inherited disposition; but almost always in a predominance of what is evil instead of good. There will be fretfulness, or ill-nature, or selfish exactions, or mental obscurity, or unreasoning demands, or, it may be, vicious and cruel propensities, where, when the brain was undisturbed by disease, reason held rule with patience and loving kindness. If the disease which has attacked the brain goes on increasing, the mental disease which follows as a consequence of organic disturbance or deterioration, will have increased also, until insanity may be established in some one or more of its many sad and varied forms.

#### INSANITY

It is, therefore, a very serious thing for a man to take into his body any substance which, on reaching that wonderfully delicate organ—the brain, sets up therein a diseased action; for, diseased mental action is sure to follow, and there is only one true name for mental disease, and that is *insanity*. A fever is a fever, whether it be light or intensely burning; and so any disturbance of the mind's rational equipoise is insanity, whether it be in the simplest form of temporary obscurity, or in the midnight of a totally darkened intellect.

We are not writing in the interest of any special theory, nor in the spirit of partisanship; but with an earnest desire to make the truth appear. The reader must not accept anything simply because we say it, but because he sees it to be true. Now, as to this matter of insanity, let him think calmly. The word is one that gives us a shock; and, as we hear it, we almost involuntarily thank God for the good gift of a well-balanced mind. What, if from any cause this beautiful equipoise should be disturbed and the mind lose its power to think clearly, or to hold the lower passions in due control? Shall we exceed the truth if we say that the man in whom this takes place is insane just in the degree that he has lost his rational self-control; and that he is restored when he regains that control?

In this view, the question as to the hurtfulness of alcoholic drinks assumes a new and graver aspect. Do they disturb the brain when they come in contact with its substance; and deteriorate it if the contact be long continued? Fact, observation, experience and scientific investigation all emphatically say yes; and we know that if the brain be disordered the mind, will be disordered, likewise; and a disordered mind is an insane mind. Clearly, then, in the degree that a man impairs or hurts his brain—temporarily or continuously—in that degree his mind is unbalanced; in that degree he is not a truly rational and sane man.

We are holding the reader's thought just here that he may have time to think, and to look at the question in the light of reason and common sense. So far as he does this, will he be able to feel the force of such evidence as we shall educe in what follows, and to comprehend its true meaning.

### **NO SUBSTANCE AFFECTS THE BRAIN LIKE ALCOHOL**

Other substances besides alcohol act injuriously on the brain; but there is none that compares with this in the extent, variety and diabolical aspect of the mental aberrations which follow its use. We are not speaking thoughtlessly or wildly; but simply uttering a truth well-known to every man of observation, and which every man, and especially those who take this substance in any form, should, lay deeply to heart. Why it is that such awful and destructive forms of insanity should follow, as they do, the use of alcohol it is not for us to say. That they do follow it, we know, and we hold, up the fact in solemn warning.

### **INHERITED LATENT EVIL FORCES**

Another consideration, which should have weight with every one, is this, that no man can tell what may be the character of the legacy he has received from his ancestors. He may have an inheritance of latent evil forces, transmitted through many generations, which only await some favoring opportunity to spring into life and action. So long as he maintains a rational self-control, and the healthy order of his life be not disturbed, they may continue quiescent; but if his brain loses its equipoise, or is hurt or impaired, then a diseased psychical condition may be induced and the latent evil forces be quickened into life.

No substance in nature, as far as yet known, has, when it reaches the brain, such power to induce

### **MENTAL AND MORAL CHANGES OF A DISASTROUS CHARACTER**

as alcohol. Its transforming power is marvelous, and often appalling. It seems to open a way of entrance into the soul for all classes of foolish, insane or malignant spirits, who, so long as it remains in contact with the brain, are able to hold possession. Men of the kindest nature when sober, act often like fiends when drunk. Crimes and outrages are committed, which shock and shame the perpetrators when the excitement of inebriation has passed away. Referring to this subject, Dr. Henry Munroe says:

"It appears from the experience of Mr. Fletcher, who has paid much attention to the cases of drunkards, from the remarks of Mr. Dunn, in his 'Medical Psychology,' and from observations of my own, that there is some analogy between our physical and psychical natures; for, as the physical part of us, when its power is at a low ebb, becomes susceptible of morbid influences which, in full vigor, would pass over it without effect, so when the psychical (synonymous with the *moral*) part of the brain has its healthy function disturbed and deranged by the introduction of a morbid poison like alcohol, the individual so circumstanced sinks in depravity, and

### **"BECOMES THE HELPLESS SUBJECT OF THE FORCES OF EVIL,**

"which are powerless against a nature free from the morbid influences of alcohol.

"Different persons are affected in different ways by the same poison. Indulgence in alcoholic drinks may act upon one or more of the cerebral organs; and, as its necessary consequence, the manifestations of functional disturbance will follow in such of the mental powers as these organs subserve. If the indulgence be continued, then, either from deranged nutrition or organic lesion, manifestations formerly developed only during a fit of intoxication may become *permanent*, and terminate in insanity or dypso-mania. M. Flourens first pointed out the fact that certain morbid agents, when introduced into the current of the circulation, tend to act *primarily* and *specially* on one nervous centre in preference to that of another, by virtue of some special elective affinity between such morbid agents and certain ganglia. Thus, in the tottering gait of the tipsy man, we see the influence of alcohol upon the functions of the *cerebellum* in the impairment of its power of co-ordinating the muscles.

"Certain writers on diseases of the mind make especial allusion to that form of insanity termed DYP SOMANIA, in which a person has an unquenchable thirst for alcoholic drinks—a tendency as decidedly maniacal as that of *homicidal mania*; or the uncontrollable desire to burn, termed *pyromania*; or to steal, called *kleptomania*."

### **HOMICIDAL MANIA**

"The different tendencies of homicidal mania in different individuals are often only nursed into action when the current of the blood has been poisoned with alcohol. I had a case of a person who, whenever his brain was so excited, told me that he experienced a most uncontrollable desire to kill or injure some one; so much so, that he could at times hardly restrain himself from the action, and was obliged to refrain from all stimulants, lest, in an unlucky moment, he might commit himself. Townley, who murdered the young lady of his affections, for which he was sentenced to be imprisoned in a lunatic asylum for life, *poisoned his brain with brandy* and soda-water before he committed the rash act. The brandy stimulated into action certain portions of the brain, which acquired such a power as to subjugate his will, and hurry him to the performance of a frightful deed, opposed alike to his better judgment and his ordinary desires.

"As to *pyromania*, some years ago I knew a laboring man in a country village, who, whenever he had had a few glasses of ale at the public-house, would chuckle with delight at the thought of firing certain gentlemen's stacks. Yet, when his brain was free from the poison, a quieter, better-disposed man could not be. Unfortunately, he became addicted to habits of intoxication; and, one night, under alcoholic excitement, fired some stacks belonging to his employers, for which, he was sentenced for fifteen years to a penal settlement, where his brain would never again be alcoholically excited."

## KLEPTOMANIA

"Next, I will give an example of *kleptomania*. I knew, many years ago, a very clever, industrious and talented young man, who told me that whenever he had been drinking, he could hardly withstand, the temptation of stealing anything that came in his way; but that these feelings never troubled him at other times. One afternoon, after he had been indulging with his fellow-workmen in drink, his will, unfortunately, was overpowered, and he took from the mansion where he was working some articles of worth, for which he was accused, and afterwards sentenced to a term of imprisonment. When set at liberty he had the good fortune to be placed among some kind-hearted persons, vulgarly called *teetotallers*; and, from conscientious motives, signed the PLEDGE, now above twenty years ago. From that time to the present moment he has never experienced the overmastering desire which so often beset him in his drinking days—to take that which was not his own. Moreover, no pretext on earth could now entice him to taste of any liquor containing alcohol, feeling that, under its influence, he might again fall its victim. He holds an influential position in the town where he resides.

"I have known some ladies of good position in society, who, after a dinner or supper-party, and after having taken sundry glasses of wine, could not withstand the temptation of taking home any little article not their own, when the opportunity offered; and who, in their sober moments, have returned them, as if taken by mistake. We have many instances recorded in our police reports of gentlemen of position, under the influence of drink, committing thefts of the most paltry articles, afterwards returned to the owners by their friends, which can only be accounted for, psychologically, by the fact that the *will* had been for the time completely overpowered by the subtle influence of alcohol."

## LOSS OF MENTAL CLEARNESS

"That alcohol, whether taken in large or small doses, immediately disturbs the natural functions of the mind and body, is now conceded by the most eminent physiologists. Dr. Brinton says: 'Mental acuteness, accuracy of conception, and delicacy of the senses, are all so far opposed by the action of alcohol, as that the maximum efforts of each are *incompatible* with the ingestion of any moderate quantity of fermented liquid. Indeed, there is scarcely any calling which demands skillful and exact effort of mind and body, or which requires the balanced exercise of many faculties, that does not illustrate this rule. The mathematician, the gambler, the metaphysician, the billiard-player, the author, the artist, the physician, would, if they could analyze their experience aright, generally concur in the statement, that *a single glass will often suffice to take, so to speak, the edge off both mind and body, and to reduce their capacity to something below what is relatively their perfection of work.*'

"Not long ago, a railway train was driven carelessly into one of the principal London stations, running into another train, killing, by the collision, six or seven persons, and injuring many others. From the evidence at the inquest, it appeared that the guard was reckoned sober, *only he had had two glasses of ale* with a friend at a previous station. Now, reasoning psychologically, these two glasses of ale had probably been instrumental in *taking off the edge* from his perceptions and prudence, and producing a carelessness or boldness of action which would not have occurred under the cooling, temperate influence of a beverage free from alcohol. Many persons have admitted to me that they were not the same after taking even one glass of ale or wine that they were before, and could not *thoroughly* trust themselves after they had taken this single glass."

## IMPAIRMENT OF MEMORY

An impairment of the memory is among the early symptoms of alcoholic derangement.

"This," says Dr. Richardson, "extends even to forgetfulness of the commonest things; to names of familiar persons, to dates, to duties of daily life. Strangely, too," he adds, "this failure, like that which indicates, in the aged, the era of second childishness and mere oblivion, does not extend to the things of the past, but is confined to events that are passing. On old memories the mind retains its power; on new ones it requires constant prompting and sustainment."

In this failure of memory nature gives a solemn warning that imminent peril is at hand. Well for the habitual drinker if he heed the warning. Should he not do so, symptoms of a more serious character will, in time, develop themselves, as the brain becomes more and more diseased, ending, it may be, in permanent insanity.

## MENTAL AND MORAL DISEASES

Of the mental and moral diseases which too often follow the regular drinking of alcohol, we have painful records in asylum reports, in medical testimony and in our daily observation and experience. These are so full and varied, and thrust so constantly on our attention, that the wonder is that men are not afraid to run the terrible risks involved even in what is called the moderate use of alcoholic beverages.

In 1872, a select committee of the House of Commons, appointed "to consider the best plan for the control and management of habitual drunkards," called upon some of the most eminent medical men in Great Britain to give their testimony in answer to a large number of questions, embracing every topic within the range of inquiry, from the pathology of inebriation to the practical usefulness of prohibitory laws. In this testimony much was said about the effect of alcoholic stimulation on the mental condition and moral character. One physician, Dr. James Crichton Brown, who, in ten years' experience as superintendent of lunatic asylums, has paid special attention to the relations of habitual drunkenness to insanity, having carefully examined five hundred cases, testified that alcohol, taken in excess, produced different forms of mental disease, of which he mentioned four classes: 1. *Mania a potu*, or alcoholic mania. 2. The monomania of suspicion. 3. Chronic alcoholism, characterized by failure of the memory and power of judgment, with partial paralysis—generally ending fatally. 4. *Dypsomania*, or an *irresistible* craving for alcoholic stimulants, occurring very frequently, paroxysmally, and with constant liability to periodical exacerbations, when the craving becomes altogether uncontrollable. Of this latter form of disease, he says: "This is invariably associated with a certain *impairment of the intellect, and of the affections and the moral powers.*"

Dr. Alexander Peddie, a physician of over thirty-seven years' practice in Edinburgh, gave, in his evidence, many remarkable instances of the moral perversions that followed continued drinking.

## RELATION BETWEEN INSANITY AND DRUNKENNESS

Dr. John Nugent said that his experience of twenty-six years among lunatics, led him to believe that there is a very close relation between the results of the abuse of alcohol and insanity. The population of Ireland had decreased, he said, two millions in twenty-five years, but there was the same amount of insanity now that there was before. He attributed this, in a great measure, to indulgence in drink.

Dr. Arthur Mitchell, Commissioner of Lunacy for Scotland, testified that the excessive use of alcohol caused a large amount of the lunacy, crime and pauperism of that country. In some men, he said, habitual drinking leads to other diseases than insanity, because the effect is always in the direction of the proclivity, but it is certain that there are many in whom there is a clear proclivity to insanity, *who would escape that dreadful consummation but for drinking; excessive drinking in many persons determining the insanity to which they are, at any rate, predisposed.* The children of drunkards, he further said, are in a larger proportion idiotic than other children, and in a larger proportion become

themselves drunkards; they are also in a larger proportion liable to the ordinary forms of acquired insanity.

Dr. Winslow Forbes believed that in the habitual drunkard the whole nervous structure, and the brain especially, became poisoned by alcohol. All the mental symptoms which you see accompanying ordinary intoxication, he remarks, result from the poisonous effects of alcohol on the brain. It is the brain which is mainly effected. In temporary drunkenness, the brain becomes in an abnormal state of alimentation, and if this habit is persisted in for years, the nervous tissue itself becomes permeated with alcohol, and organic changes take place in the nervous tissues of the brain, producing *that frightful and dreadful chronic insanity which we see in lunatic asylums, traceable entirely to habits of intoxication*. A large percentage of frightful mental and brain disturbances can, he declared, be traced to the drunkenness of parents.

Dr. D.G. Dodge, late of the New York State Inebriate Asylum, who, with Dr. Joseph Parrish, gave testimony before the committee of the House of Commons, said, in one of his answers: "With the excessive use of alcohol, functional disorder will invariably appear, and no organ will be more seriously affected, and possibly impaired, than the brain. *This is shown in the inebriate by a weakened intellect, a general debility of the mental faculties*, a partial or total loss of self-respect, and a departure of the power of self-command; all of which, acting together, place the victim at the mercy of a depraved and morbid appetite, and make him utterly powerless, by his own unaided efforts, to secure his recovery from the disease which is destroying him." And he adds: "I am of opinion that there is a

### **"GREAT SIMILARITY BETWEEN INEBRIETY AND INSANITY**

"I am decidedly of opinion that the former has taken its place in the family of diseases as prominently as its twin-brother insanity; and, in my opinion, the day is not far distant when the pathology of the former will be as fully understood and as successfully treated as the latter, and even more successfully, since it is more within the reach and bounds of human control, which, wisely exercised and scientifically administered, may prevent curable inebriation from verging into possible incurable insanity."

### **GENERAL IMPAIRMENT OF THE FACULTIES**

In a more recent lecture than the one from which we have quoted so freely, Dr. Richardson, speaking of the action of alcohol on the mind, gives the following sad picture of its ravages:

"An analysis of the condition of the mind induced and maintained by the free daily use of alcohol as a drink, reveals a singular order of facts. The manifestation fails altogether to reveal the exaltation of any reasoning power in a useful or satisfactory direction. I have never met with an instance in which such a claim for alcohol has been made. On the contrary, confirmed alcoholics constantly say that for this or that work, requiring thought and attention, it is necessary to forego some of the usual potations in order to have a cool head for hard work.

"On the other side, the experience is overwhelmingly in favor of the observation that the use of

### **"ALCOHOL SELLS THE REASONING POWERS,**

"make weak men and women the easy prey of the wicked and strong, and leads men and women who should know better into every grade of misery and vice. \* \* \* If, then, alcohol enfeebles the reason, what part of the mental constitution does it exalt and excite? It excites and exalts those animal, organic, emotional centres of mind which, in the dual nature of man, so often cross and oppose that

pure and abstract reasoning nature which lifts man above the lower animals, and rightly exercised, little lower than the angels.

### **IT EXCITES MAN'S WORST PASSIONS**

"Exciting these animal centres, it lets loose all the passions, and gives them more or less of unlicensed dominion over the man. It excites anger, and when it does not lead to this extreme, it keeps the mind fretful, irritable, dissatisfied and captious.... And if I were to take you through all the passions, love, hate, lust, envy, avarice and pride, I should but show you that alcohol ministers to them all; that, paralyzing the reason, it takes from off these passions that fine adjustment of reason, which places man above the lower animals. From the beginning to the end of its influence it subdues reason and sets the passions free. The analogies, physical and mental, are perfect. That which loosens the tension of the vessels which feed the body with due order and precision, and, thereby, lets loose the heart to violent excess and unbridled motion, loosens, also, the reason and lets loose the passion. In both instances, heart and head are, for a time, out of harmony; their balance broken. The man descends closer and closer to the lower animals. From the angels he glides farther and farther away.

### **A SAD AND TERRIBLE PICTURE**

"The *destructive* effects of alcohol on the human mind present, finally, the saddest picture of its influence. The most æsthetic artist can find no angel here. All is animal, and animal of the worst type. Memory irretrievably lost, words and very elements of speech forgotten or words displaced to have no meaning in them. Rage and anger persistent and mischievous, or remittent and impotent. Fear at every corner of life, distrust on every side, grief merged into blank despair, hopelessness into permanent melancholy. Surely no Pandemonium that ever poet dreamt of could equal that which would exist if all the drunkards of the world were driven into one mortal sphere.

"As I have moved among those who are physically stricken with alcohol, and have detected under the various disguises of name the fatal diseases, the pains and penalties it imposes on the body, the picture has been sufficiently cruel. But even that picture pales, as I conjure up, without any stretch of imagination, the devastations which the same agent inflicts on the mind. Forty per cent., the learned Superintendent of Colney Hatch, Dr. Sheppard, tells us, of those who were brought into that asylum in 1876, were so brought because of the direct or indirect effects of alcohol. If the facts of all the asylums were collected with equal care, the same tale would, I fear, be told. What need we further to show the destructive action on the human mind? The Pandemonium of drunkards; the grand transformation scene of that pantomime of drink which commences with, moderation! Let it never more be forgotten by those who love their fellow-men until, through their efforts, it is closed forever."

We might go on, adding page after page of evidence, showing how alcohol curses the souls, as well as the bodies, of men; but enough has been educed to force conviction on the mind of every reader not already satisfied of its poisonous and destructive quality.

How light are all evils flowing from intemperance compared with those which it thus inflicts on man's higher nature. "What," says Dr. W.E. Channing, "is the great essential evil of intemperance? The reply is given, when I say, that intemperance is the

### **"VOLUNTARY EXTINCTION OF REASON**

"The great evil is inward or spiritual. The intemperate man divests himself, for a time, of his rational and moral nature, casts from himself self-consciousness and self-command, brings on frenzy, and by repetition of this insanity, prostrates more and more his rational and moral

powers. He sins immediately and directly against the rational nature, that Divine principle which, distinguishes between truth and falsehood, between right and wrong action, which, distinguishes man from the brute. This is the essence of the vice, what constitutes its peculiar guilt and woe, and what should particularly impress and awaken those who are laboring for its suppression. Other evils of intemperance are light compared with this, and almost all flow from this; and it is right, it is to be desired that all other evils should be joined with and follow this. It is to be desired, when a man lifts a suicidal arm against his higher life, when he quenches reason and conscience, that he and all others should receive solemn, startling warning of the greatness of his guilt; that terrible outward calamities should bear witness to the inward ruin which he is working; that the handwriting of judgment and woe on his countenance, form and whole condition, should declare what a fearful thing it is for a man, "God's rational offspring, to renounce his reason, and become a brute."

## **CHAPTER V**

### **NOT A FOOD, AND VERY LIMITED IN ITS RANGE AS A MEDICINE**

The use of alcohol as a medicine has been very large. If his patient was weak and nervous, the physician too often ordered wine or ale; or, not taking the trouble to refer his own case to a physician, the invalid prescribed these articles for himself. If there was a failure of appetite, its restoration was sought in the use of one or both of the above-named forms of alcohol; or, perhaps, adopting a more heroic treatment, the sufferer poured brandy or whisky into his weak and sensitive stomach. Protection from cold was sought in a draught of some alcoholic beverage, and relief from fatigue and exhaustion in the use of the same deleterious substance. Indeed, there is scarcely any form of bodily ailment or discomfort, or mental disturbance, for the relief of which a resort was not had to alcohol in some one of its many forms.

It is fair to say that, as a medicine, its consumption has far exceeded that of any other substance prescribed and taken for physical and mental derangements.

The inquiry, then, as to the true remedial value of alcohol is one of the gravest import; and it is of interest to know that for some years past the medical profession has been giving this subject a careful and thorough investigation. The result is to be found in the brief declaration made by the Section on Medicine, of the

#### **INTERNATIONAL MEDICAL CONGRESS,**

which met in Philadelphia in 1876. This body was composed of about six hundred delegates, from Europe and America, among them, some of the ablest men in the profession. Realizing the importance of some expression in relation to the use of alcohol, medical and otherwise, from this Congress, the National Temperance Society laid before it, through its President, W.E. Dodge, and Secretary, J.N. Stearns, the following memorial:

"The National Temperance Society sends greeting, and respectfully invites from your distinguished body a public declaration to the effect that alcohol should be classed with other powerful drugs; that, when, prescribed medicinally, it should be with conscientious caution and a sense of grave responsibility; that it is in no sense food to the human system; that its improper use is productive of a large amount of physical disease, tending to deteriorate the human race; and to recommend, as representatives of enlightened science, to your several nationalities, total abstinence from alcoholic beverages."

In response to this memorial, the president of the society received from J. Ewing Mears, M.D., Secretary of the Section on Medicine, International Congress, the following official letter, under date of September 9th, 1876:

"DEAR SIR: I am instructed by the Section on Medicine, International Medical Congress, of 1876, to transmit to you, as the action of the Section, the following conclusions adopted by it with regard to the use of alcohol in medicine, the same being in reply to the communication sent by the National Temperance Society.

"1. Alcohol is not shown to have a definite food value by any of the usual methods of chemical analysis or physiological investigation.

"2. Its use as a medicine is chiefly that of a cardiac stimulant, and often admits of substitution.

"3. As a medicine, it is not well fitted for self-prescription by the laity, and the medical profession is not accountable for such administration, or for the enormous evils arising therefrom.

"4. The purity of alcoholic liquors is, in general, not as well assured as that of articles used for medicine should be. The various mixtures, when used as medicine, should have definite and known composition, and should not be interchanged promiscuously."

The reader will see in this no hesitating or halfway speech. The declaration is strong and clear, that, as a food, alcohol is not shown, when subjected to the usual method of chemical or physiological investigation, to have any food value; and that, as a medicine, its use is chiefly confined to a cardiac stimulant, and often admits of substitution.

A declaration like this, coming, as it does, from a body of medical men representing the most advanced ideas held by the profession, must have great weight with the people. But we do not propose resting on this declaration alone. As it was based on the results of chemical and physiological investigations, let us go back of the opinion expressed by the Medical Congress, and examine these results, in order that the ground of its opinion may become apparent.

There was presented to this Congress, by a distinguished physician of New Jersey, Dr. Ezra M. Hunt, a paper on "Alcohol as a Food and Medicine," in which the whole subject is examined in the light of the most recent and carefully-conducted experiments of English, French, German and American chemists and physiologists, and their conclusions, as well as those of the author of the paper, set forth in the plainest manner. This has since been published by the National Temperance Society, and should be read and carefully studied by every one who is seeking for accurate information on the important subject we are now considering. It is impossible for us to more than glance at the evidence brought forward in proof of the assertion that

### **ALCOHOL HAS NO FOOD VALUE,**

and is exceedingly limited in its action as a remedial agent; and we, therefore, urge upon all who are interested in this subject, to possess themselves of Dr. Hunt's exhaustive treatise, and to study it carefully.

If the reader will refer to the quotation made by us in the second chapter from Dr. Henry Monroe, where the food value of any article is treated of, he will see it stated that "every kind of substance employed by man as food consists of sugar, starch, oil and glutinous matter, mingled together in various proportions; these are designed for the support of the animal frame. The glutinous principles of food—fibrine, albumen and casein—are employed to build up the structure; while the oil, starch and sugar are chiefly used to generate heat in the body."

Now, it is clear, that if alcohol is a food, it will be found to contain one or more of these substances. There must be in it either the nitrogenous elements found chiefly in meats, eggs, milk, vegetables and seeds, out of which animal tissue is built and waste repaired; or the carbonaceous elements found in fat, starch and sugar, in the consumption of which heat and force are evolved.

"The distinctness of these groups of foods," says Dr. Hunt, "and their relations to the tissue-producing and heat-evolving capacities of man, are so definite and so confirmed by experiments on animals and by manifold tests of scientific, physiological and clinical experience, that no attempt to discard the classification has prevailed. To draw so straight a line of demarcation as to limit the one entirely to tissue or cell production, and the other to heat and force production through ordinary combustion, and to deny any power of interchangeability under special demands or amid defective supply of one variety, is, indeed, untenable. This does not in the least invalidate the fact that we are able to use these as ascertained landmarks."

How these substances, when taken into the body, are assimilated, and how they generate force, are well known to the chemist and physiologist, who is able, in the light of well-ascertained laws, to determine whether alcohol does or does not possess a food value. For years, the ablest men in the medical profession have given this subject the most careful study, and have subjected alcohol to every known test and experiment, and the result is that it has been, by common consent, excluded

from the class of tissue-building foods. "We have never," says Dr. Hunt, "seen but a single suggestion that it could so act, and this a promiscuous guess. One writer (Hammond) thinks it possible that it may 'somehow' enter into combination with the products of decay in tissues, and 'under certain circumstances might yield *their* nitrogen to the construction of new tissues.' No parallel in organic chemistry, nor any evidence in animal chemistry, can be found to surround this guess with the areola of a possible hypothesis."

Dr. Richardson says: "Alcohol contains no nitrogen; it has none of the qualities of structure-building foods; it is incapable of being transformed into any of them; it is, therefore, not a food in any sense of its being a constructive agent in building up the body." Dr. W.B. Carpenter says: "Alcohol cannot supply anything which is essential to the true nutrition of the tissues." Dr. Liebig says: "Beer, wine, spirits, etc., furnish no element capable of entering into the composition of the blood, muscular fibre, or any part which is the seat of the principle of life." Dr. Hammond, in his Tribune Lectures, in which he advocates the use of alcohol in certain cases, says: "It is not demonstrable that alcohol undergoes conversion into tissue." Cameron, in his Manuel of Hygiene, says: "There is nothing in alcohol with which any part of the body can be nourished." Dr. E. Smith, F.R.S., says: "Alcohol is not a true food. It interferes with alimentation." Dr. T.K. Chambers says: "It is clear that we must cease to regard alcohol, as in any sense, a food."

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