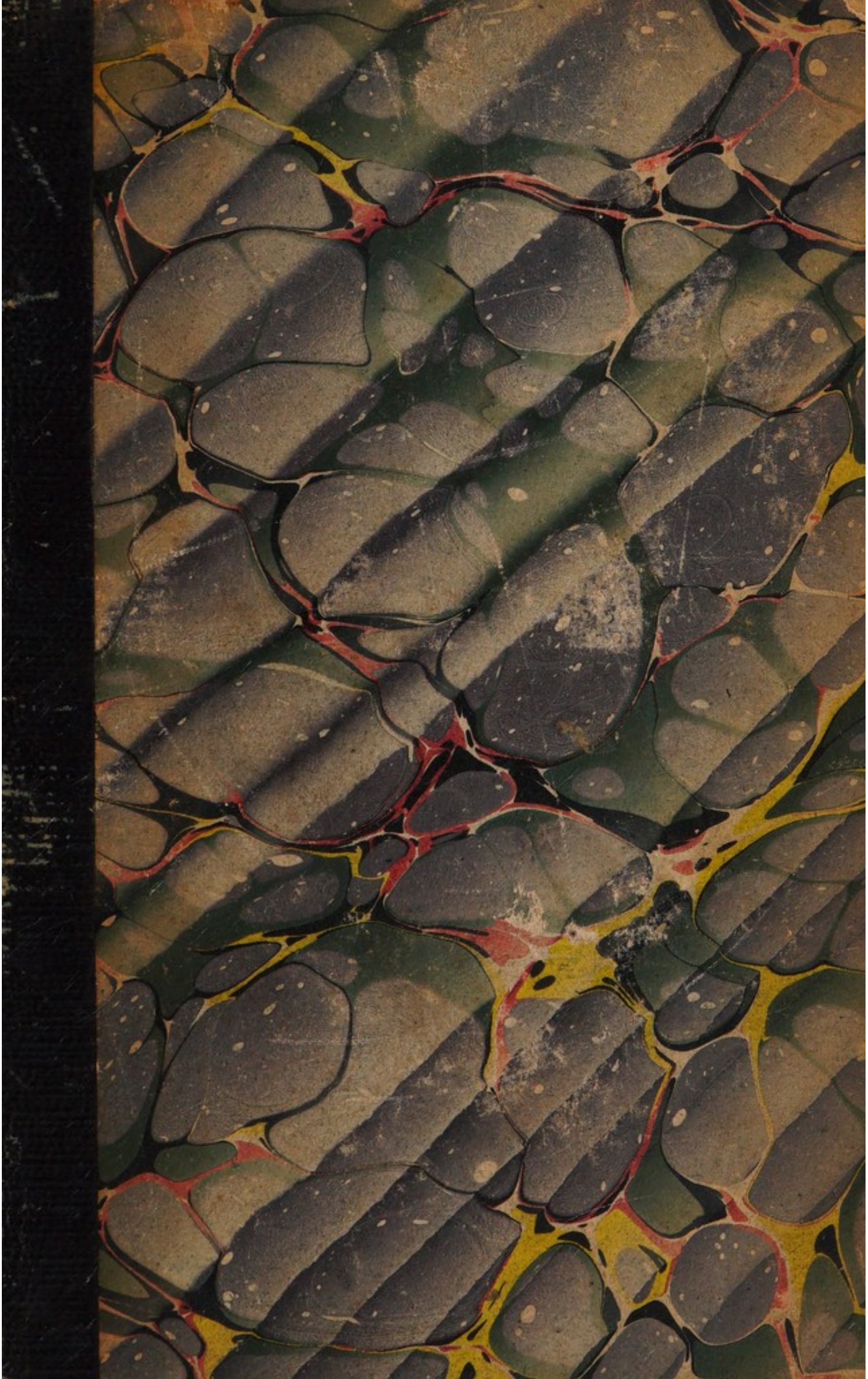
Temperance prize essays / By Drs. Mussey and Lindsly.



TEMPERANCE

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PRIZE ESSAYS.

BY

DRS. MUSSEY AND LINDSLY.

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1835.

PREFACE.

AMONG the numerous obstacles which have retarded the progress of that great benevolent enterprize, the Temperance Reformation, and which seem to stand in the way of its entire success, there is none greater than the prevalent impression, that Ardent Spirit, in the treatment of disease, is not only useful, but that it sometimes is indispensable as an article of medicine. If this impression be well founded, it is clear, that although Alcoholic Liquors be discarded as a common drink, they will still continue to enter into the beverage of the invalid, and find, it is to be feared, too secure a lodgment in the sick room.

With a view to procure a full investigation of this subject from the most competent sources, and to ascertain how far the objection urged on this score to the entire disuse of Ardent Spirit is founded in truth, and also to acquire more satisfactory information as to its origin, history, and introduction into medical practice, the following notice was given in the public papers, which resulted in eliciting the present, with several other Essays :—

TEMPERANCE PRIZE QUESTION.

With the laudable design of promoting the temperance reformation, which has been so successfully commenced in the United States, the Pennsylvania State Temperance Society has united with several individuals for the purpose of raising a sum as a premium to be awarded to the author of the best dissertation embracing the following questions, viz :—

1. What is the history of the origin of Ardent Spirit, and of its introduction into medical practice ?

2. What are its effects upon the animal economy ? And

3. Is there any condition of the system, in health or

disease, in which its use is indispensable, and for which there is not an adequate substitute?

It is desirable that the premium should be at least five hundred dollars, and efforts will be made to raise it to one thousand dollars. At present however we are authorized to pledge a premium of but three hundred dollars, which will be awarded in money, a gold medal, or in plate with a suitable inscription, at the option of the successful writer.

Dissertations must be transmitted, post paid, to the Rev. W. W. Niles, New York city, on or before the 1st January, 1834. The dissertation should have upon its title page a device, or motto, corresponding with one upon an accompanying sealed letter, containing the author's name, title, and residence.

The seal of the letter accompanying the successful dissertation only will be broken, while all others, with their dissertations, will remain at the disposal of their authors.

The Board of Adjudicators consist of—

John C. Warren, M. D., Professor of Anatomy and Surgery, Harvard University, Boston.

Thomas Sewall, M. D., Professor of Anatomy and Physiology, Columbian College, Washington, D. C.

Roberts Vaux, Esq., President of the Pennsylvania State Temperance Society, Philadelphia.

PARKER CLEAVELAND, M. D., Professor of Chemistry and Materia Medica, Bowdoin College, Maine.

VANBRAUGH LIVINGSTON, Westchester county, N. Y.

BENJAMIN SILLIMAN, M. D. Professor of Chemistry, Yale College, New Haven, Conn.

FRANCIS WAYLAND, D. D., President of Brown University, Providence, Rhode Island.

WILLIAM GOODELL, editor of the 'Genius of Temperance,' New York City.

Rev. W. W. NILES, Secretary of the Board.

Agreeably to the foregoing publication, a number of dissertations were received by the secretary, and after a careful perusal of them by the Board of Adjudicators, several were found to possess great merit, and two of them were adjudged worthy of approval, having fulfilled the design for which the prize was offered.

To the first, designated by the motto '*Deo Juvante*——,' was awarded the prize of three hundred dollars. Upon opening the accompanying sealed letter, it was found to be the production of R. D. MUSSEY, M. D., Professor of anatomy and surgery, in Dartmouth college, N. H.

To the second dissertation, designated by the motto '*Palor et genæ pendulæ oculorum ulcera tremulæ manus, furiales somni, inquies nocturna*,' was awarded a prize of three hundred dollars. Upon opening the accompa-

nying sealed letter it was found to be the production of HARVEY LINDSLY, M. D., city of Washington.

W. W. NILES, Secretary of the Board.

In pursuance of the original design the Committee of Publication are now enabled to present to the American public the successful Essays. They have no hesitation in affirming that they will be found to contain a mass of facts and reasonings on the nature, history, and effects of alcoholic agents of the utmost moment to the cause of Temperance, and thereby to the interests of humanity. The writers have given no superficial view of the several points submitted to their investigation. Historically and physiologically they have probed the subject to the bottom; and yet the results of their inquiries are presented in a form so perspicuous, attractive, and popular, that they cannot fail to be read with intense interest wherever the subject of temperance has been agitated.

From the nature of the topics considered, and the circumstances of the writers acting without concert or privity to each other's plan, it was hardly to be expected that they should not occasionally, especially in the historical parts, have had recourse to the same authorities. This may perhaps, in some few instances, have led them over nearly the same ground, and occasioned the repetition of some few matters of fact; but these instances are so rare, and so slight, as not to form the least objection to the plan of giving both the Essays in their original form without subjecting them to any modification on this account. The respective writers have adopted their own peculiar modes of treating the subject, and if substantially the same idea should occasionally occur, it will be found to be presented in different lights and bearing different relations, so that nothing shall be abated on this account of the general interests of the discussion. The Essays are therefore submitted with entire confidence in their

superior intrinsic merit, and in sanguine hopes of their extensive usefulness to the friends of Temperance in every part of our country.

By the Committee.

ESSAY

ON

ARDENT SPIRITS,

AND

ITS SUBSTITUTES

AS A MEANS OF INVIGORATING HEALTH.

"Deo Juvante—"

By REUBEN D. MUSSEY, M.D.
Professor of Anatomy and Surgery, Dartmouth College, N. Hampshire;
President New Hampshire Medical Society;
and Fellow of the American Academy of Sciences, &c., &c.

ERRATA.

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ESSAY, &c.

QUEST. I. WHAT IS THE HISTORY OF THE ORIGIN OF ARDENT SPIRIT, AND OF ITS INTRODUCTION INTO MEDICAL PRACTICE?

QUEST. II. WHAT ARE ITS EFFECTS UPON THE ANIMAL ECONOMY?

QUEST. III. IS THERE ANY CONDITION OF THE SYSTEM IN HEALTH OR DISEASE IN WHICH ITS USE IS INDISPENSABLE, AND FOR WHICH THERE IS NOT AN ADEQUATE SUBSTITUTE?

CHAPTER I.

History.

ARDENT SPIRIT or ALCOHOL is a thin colorless fluid, lighter than water, somewhat volatile, of a pungent smell and taste, readily inflaming by the application of a lighted taper, and burning with a dim blue or purple flame. It is produced only by the decomposition of vegetable and animal substances,* in a state of fermentation. It is the intoxicating principle of all fermented liquors, as wine, cider, beer, &c., and may be separated from them by distillation and other processes.

Physical properties and origin of alcohol.

*The Tartars and Chinese make a kind of wine and ardent spirit from the flesh of sheep.

Fermented liquors derived from the juices of fruits, and from the farinaceous grains, were used in periods of high antiquity. The first authentic record we have of wine, refers to a period scarcely less remote than that of the deluge. Noah planted a vineyard and drank of the fruit of it; and the hypothesis that he was the inventor of wine, receives countenance from the assertion of Hecataeus, the Milesian historian, that the use of wines was first discovered in Ætolia by Orestes the son of Deucation. This last personage, it is well known, was the hero of the deluge among those heathen nations whose records and traditions recognise that great event.

Wine invented by Noah.

The early history of alcohol in its uncombined state, or in the form of ardent spirit, is obscure. Had Mahometan fanaticism spared the Alexandrian library, the curiosity of our own times might perhaps have been gratified by a knowledge of the period of its discovery, as well as with the name and residence of the individual whose researches gave to the world a poison, which, in countries where its use has become general, has caused more human suffering than any other invention of man.

The period at which distilled spirit was invented—obscure.

There is indeed some probability that China may claim the discovery of the process of distillation. 'In that country,' says Morewood, 'which has preserved its civil polity for so many thousand years, the art of distillation was known far beyond the date of its authentic records.' The same writer, referring to the authority of Du Halde, Martini, Gro-

Distillation discovered in China.

sier and others, says, that there is abundant proof of the Chinese having been well versed in that branch of alchemy which has for its object a *panacea*, or *universal* medicine, long before this fancy engaged the attention of European practitioners.' The search after this elixir of life is said to have originated with the disciples of Lao Chiun, who flourished six hundred years before the Christian era. If this statement be authentic, there can remain scarely a doubt that the Chinese were acquainted with distilled spirit more than two thousand years ago.

Distilled spirit possibly known by the Chinese 2000 years ago.

With a knowledge of the process of distillation, and impelled by a motive so strong as the hope of finding an elixir, a single draught of which would confer an immunity from disease, decay, and death, the alchemists could hardly have failed early to subject to this process every kind of beverage which was known to exert an exhilarating influence upon the actions of life. The infatuations of alchemy still existed in China in times comparatively modern, for three of her kings, two in the ninth, and one in the sixteenth century, perished from a draught of the elixir of life, prepared by the alchemists, and taken with a view to attain to immortality.

Three Chinese Kings killed by the elixir of life.

To Arabia, however, Europe appears to have been wholly indebted for a knowledge of the art of distillation. It has been suggested, that, as the Arabians at a very early period for commercial purposes penetrated into China, even as far as to Canton, there might have been an interchange

in the scientific discoveries of the two nations. As the result of their intercourse must probably always remain a matter of conjecture, it is not unreasonable to allow to the Arabians, what has usually been accorded to them, the credit of having found out the process of distillation, whether they were the only inventors or not. A knowledge of chemistry came with the Saracens into Spain, and to this day, several terms purely Arabic, are retained in the nomenclature of European chemistry, as alcohol, alcali, &c.

Distillation probably discovered in Arabia.

Geber, whose period and country are questionable, but who is regarded by many as of Saracen origin, and who is generally supposed to have lived in the *seventh* century of the Christian era, is so particular in his descriptions as to show, that in his time not only the art of distillation, but the methods of conducting various pharmaceutical processes were well understood. Distillation was certainly known in Spain as early as the *ninth* century, and there is a high degree of probability that, along with other mechanical arts, it was brought there by the Saracens in the early part of the *eighth* century.

Geber in the 7th century.

In the 9th century in Spain.

Rhazes, who was a most scientific and distinguished Arabian physician, born about the middle of the *ninth* century, and who resided at the court of Almansor in Seville, gives minute directions for making a particular pharmaceutical preparation in a glass retort. At what precise period the hemists learned the art of extracting alcohol om fermented liquors it is impossible to deter-

mine; but from the fact of their being constantly engaged in the pursuit of the elixir of life, and from other considerations already suggested, there can be but little doubt of its having been known at or before the time of Rhazes. The ardent thirst for discovery, and the guarded secresy with which chemical processes were at that time conducted, the great facility of disguising alcohol by a multitude of odorous and colored substances, together with the hope that in some shape or combination it would turn out to be the long sought *elixir*, might prevent the mode of its preparation from becoming public for a long period of time, possibly for centuries.

Ardent spirit probably known in the 9th century, possibly earlier.

We are not informed when it was first used as a medicine. Its pungent and exhilarating properties would easily give it a place among restorative remedies, more especially as it might easily be reinforced or modified by the addition of medicinal agents, from the vegetable and mineral kingdoms.

The first spirit we have any account of in Europe was made from the grape, and sold as a medicine in Spain and Italy under the Arabian term alcohol.* The Genoese were the first who prepared it from grain, and are said to have made, in the thirteenth century, a gainful traffic by selling it in small bottles at a high price, under the name of *aqua vitæ*, or *water of life*. Distillation was known in France in 1313, and to this day

Sold as a medicine by the Genoese in the 13th century.

*The original signification of the word 'alcohol,' is a substance which is odorous, and easily evaporates.

the common distilled spirit of that country bears the name of *water of life.* In the 14th century medicated spirits were manufactured and sold in Hungary. A queen of that country is said to have become famous by making a preparation of *aqua vitæ* with rosemary, which was thought to possess extraordinary medicinal virtues. The medicated spirit called gin, which is distilled with juniper-berries, is said to have been first prepared in Holland in the 17th century.* It is still in vogue among those who labor under certain local obstructions, occasioned by irregular and intemperate habits.

Sold by a Queen of Hungary in the 14th century.

Gin in the 17th century.

Thus introduced as a medicine, ardent spirit gradually found its way from one region and kingdom to another, and is now used both as a medicine and a beverage in every civilized country in the world. The only regions where no kind of intoxicating liquor is manufactured, are New-Zealand, New-South Wales, and Van Dieman's Land.†

* Morewood. † Dr. Thompson.

CHAPTER II.

Effects of Ardent Spirit upon the animal economy.

The first effect of ardent spirit upon the living fibre is stimulating. This has been observed on its application to the web of the foot of a frog. By the aid of the microscope, it appeared that the blood in the small vessels circulated, for a short time, more rapidly than before. Rubbed upon the human skin, or snuffed into the nostrils in the form of liquid or of vapor, it augments the sensibility and quickens the circulation upon the surfaces with which it is brought in contact. Taken into the stomach in a concentrated state, it instantaneously occasions a burning pain.

When swallowed in a state sufficiently diluted, it throws through the stomach a glow or grateful warmth, which in many cases is transmitted to the remote organs of the body. The brain and the nerves of the senses partake in the exhilaration. The eye glistens, the hearing is more acute, the colloquial powers are exalted, and the expressions of the countenance are vivid and emphatic, changing in quick succession, in conformity with the rapidly shifting topics of conversation, denoting that the movements of the mind are led by the influence of its more remote and capricious associations.

Upon the stomach.

Brain, nerves, &c.

As the alcoholic excitation increases, the pas-

sions are easily unfolded, as pity, hatred, generosity, revenge, while the reasoning powers and the moral sense are weakened and perverted, and the degradation of these noblest attributes of human nature is manifested by indecent, profane, idiotic, or pugnacious garrulity.

The passions excited.

Under the still deeper and more protracted influence of this poison, the functions of the senses and the operations of the mind are slower and less coherent; the voluntary muscles at the same time indicating their enfeebled condition, by the falling eye-lid, the open mouth, the driveling lip, and the hanging head; and the exhausted brain and nerves at length leave the whole system to sink into a state of unconsciousness or profound insensibility, which sometimes terminates in death.

Effects of large doses.

The free and habitual use of ardent spirit, is followed by habitual languor in the functions of the organs of the senses, and in fact of every organ of the body. The physiognomy tells what has been done. All the exquisite delineations of benevolence, of delicacy, and of high moral and religious feeling, are effaced from the countenance, as their prototypes are from the mind, and stupidity and selfishness occupy their places. Even strong passion is but faintly portrayed by the half palsied muscles of the face, and sluggishness dwells in that mind which was once impelled by a spirit of activity and enterprize. The powers of digestion, and nutrition having been effectually invaded, the stomach admits less food than before, and the whole system

Effects of spirits used habitually.

is but imperfectly supplied with nourishment. Numerous chronic diseases, with melancholy and madness in their train, put in their claim for a residence in the decaying organs of the body; and when acute forms of disease, as thoracic inflammation and pestilential fever make an attack, the work of ruin, thus begun and prosecuted by alcohol, is completed by death.

In deep drunkenness there is *lethargy* and *stupor*, the *face* is often *pale*, sometimes *flushed*, very *rarely livid* and *swollen*, and still more *rarely* natural.* The *breathing* is generally *slow*, sometimes *stertorous* or *laborious*, seldom *rapid* or *calm*. The respiratory movements are chiefly or wholly abdominal; the separate acts of inspiration and expiration, particularly the former, occupying but a short time. The puffing of the cheeks as in apoplexy exceedingly rare. The *extremities* are almost invariably *cold;* the *pulse* feeble and slow, and not unfrequently imperceptible; the *pupil* generally dilated, though sometimes contracted."†

Physiognomy of drunkenness.

* Dr. Ogston's cases.

† *Remedies for a fit of intoxication.*

1. Dislodge the spirit from the stomach by emetics aided by pressure upon the pit of the stomach, or by the use of the stomach pump.

2. Sometimes inject warm water to dilute the glairy mucus, or to distend this organ to the point of action, when not sufficiently distended by its contents.

3. Cold affusion to the head, especially when the head is hot.

4. The vigorous and persevering application of a cow-skin whip, or of small rods to the gluteal eminences. This last is a most effectual remedy in rousing the oppressed energies of the brain and nerves.

In the bodies of persons dead from a fit of drunkenness, the following appearances have been observed, viz. Appearances after death.

The Brain. Its peripheral or exterior parts, commonly firm; its blood vessels engorged; turbid serum beneath the arachnoid membrane; and turbid or slightly bloody serum, often several ounces, in the ventricles.

The Heart and great vessels filled with fluid blood; the right side of the heart more distended than the left; sometimes bloody serum in the pericardium.

The Lungs. Frothy mucus in the air tubes and cells; lower portion of the lungs charged with fluid blood;—sometimes hepatized.

The Stomach contracted and small; its walls sometimes three or four times their natural thickness and indurated; the folds of its lining membrane sometimes of a deep red color; the whole membrane soft, and easily torn.

The Intestines. Inflammation, thickening and softening of the lining membrane; ulcerations of this membrane in the terminal portion of the small intestine; occasionally preternatural adhesions of them to the other viscera as the duodenum and the pancreas.

The Liver large and firm; its surface frequently uneven, pale, mottled, or orange colored, its interior orange colored, exhibiting fatty degenerations.

The Kidneys paler than natural, large, and flabby; their cut surfaces sometimes bloody.

It should be observed, that of the foregoing marks of disease, some, as the serum under the arachnoid membrane and in the ventricles of the

brain, the fluidity of the blood in the heart and great vessels, and perhaps the deep red upon parts of the lining membrane of the stomach, are to be regarded as the effects of the last or fatal fit of intoxication; while others, as the striking firmness confidently alleged by some anatomists to have been observed in the superficial parts of the brain;—the thickening, induration, contraction, and ulceration of the stomach and intestines—the enlargement, unevenness, hardness, fatty deposits, and orange color of the liver—the unnatural color, size, and flabby texture of the kidneys, must have resulted from the more gradual operation of the habitual use of strong drink.

Blood remains fluid.

It is well known, that often in cases of death by lightning, the blood does not coagulate, but remains in the form of a homogeneous fluid, the principle of life having been suddenly and wholly extinguished by the electrical shock. The same thing is observable when death takes place from the influence of certain poisons, as the woorara, ticunas, and tobacco.

This is also the case when a draught of alcoholic liquor proves fatal. The blood in the heart, the large vessels, and the lungs, is entirely fluid; so effectual is this poison in preventing the last natural act of vitality in the blood, its coagulation.

Modes by which spirit produces its effects.

A difference of opinion has existed among physiologists as to the *manner* in which alcohol acts upon the animal machine in producing its peculiar effects. The sudden exhilaration and glow in distant organs, occasioned by the swallowing of a small quantity of it, result, probably, from the impressions made

By sympathy. upon the nerves of that organ being communicated by *sympathy* to those of distant parts. From experiments practiced by Rayer, it appears that an impression made by alcohol upon a sensitive surface of great extent is speedily fatal. Injected into the peritoneum of a rabbit, it extinguished life in less than a minute; an effect altogether too sudden to admit of explanation by absorption. This view will also explain the sudden recovery which takes place upon the stomach being entirely emptied, in those cases of inebriation which arise from a single and large draught, and in which the symptoms have existed only for a period too short to admit of absorption to any extent.

Mr. Brodie, indeed, from some of his experiments made upon animals, inferred, that this article is not at all absorbed or carried into the circulation. A sufficient number of facts, however,

By absorption. prove its capability of passing into the circulation, and sometimes in large quantities. Mr. Magendie, in an experiment upon a dog, half an hour after tying up the outlet

In the blood. of the stomach and injecting it with alcohol, found a strong odor of this fluid in the blood, and obtained it also from the blood by distillation.

A healthy laboring man in London, about thirty years of age, 'drank at a single draught, a quart of gin for a wager;' within a quarter of an hour he fell down insensible, and died in about three hours from the time of falling. In the Westmin-

In the brain. ster Hospital his body was dissected, and in the ventricles of the brain was

found a considerable quantity of limpid fluid, distinctly impregnated with gin, both to the sense of smell and taste, and even to the test of inflammability. The liquid appeared to the senses of the examining students, as strong as one-third gin to two-thirds water.*

Another case in point is related by Dr. Ogston. He says, 'that on the 23d of August, 1831, he examined, in company with another medical man, the body of a woman aet. 40, who was believed to have drowned herself in a fit of intoxication no one having witnessed the act.' 'We found,' says he, 'nearly four ounces of fluid in the ventricles of the brain, having all the physical qualities of alcohol, as proved by the united testimony of two other medical men who saw the body opened and examined the fluid. The stomach also smelt of this fluid.' That spirit exists in the circulation is obvious, from the fact of its being present in many cases in the breath, after its entire removal from the stomach,† as is shown by a careful examination of its contents, discharged by vomiting, or through the aid of the stomach pump.

Does spirit pass into the circulation by the route of lacteal absorption? It has been indubitably established by a great variety of experiments,‡ that numerous articles, some of them slowly, others expeditiously, may be imbibed directly by the walls or coats of the blood vessels, and thus

* Cook on nervous diseases.—Hare on the stomach.

† Ogston.

‡ Made by Magendie, Fodera, Dutrachet, Coates, Lawrence, and others.

pass into the blood. In one experiment, less than three minutes were occupied in the passage of a strong watery solution of nux vomica through the coats of the jugular vein of a dog. In the other experiment with the dog, already referred to, in which M. Magendie found spirit in the blood, there was none detected in the chyle.

Spirit, then, *may* sometimes enter the circulation by direct imbibition through the coats of the blood vessels; and when it has arrived at the blood, it unites with its watery part, for which it has a strong affinity, and circulates along with it through every organ, deranging, oppressing, or extinguishing the actions of life. In the brain, when a portion of the watery part of the blood is thrown into the ventricles to relieve the gorged vessels, alcohol is deposited with it; and from its strong affinity for water, it is probable that a proportion of it is deposited along with the thin fluids secreted by the large glands, as the mammary glands, and kidneys; and there can be no doubt of its being exhaled in large quantities from those surfaces, as the skin and bronchial membrane, from which there is a free transpiration of aqueous matter, whether in a liquid or æriform state.

Inhaling the vapor of spirit or of wine may cause drunkness.

The inhalation, only, of the vapor of distilled spirit or of wine, may be carried so far as to produce deep intoxication. Received in this manner, it is probably imbibed by the blood in the fine vessels distributed upon the walls of the air cells of the lungs, and then conducted by the route of the circulation to the brain and other distant organs.

In so far as we are acquainted with the powers of the stomach, we have no evidence that it is capable of digesting or decomposing alcohol. Dr. Beaumont, in his experiments with St. Martin, observed that neither alcohol nor fermented liquors, nor other *fluids*, not holding aliment in solution, are changed by the gastric juice, but very soon after being received, pass out of the stomach either through the pylorus or by absorption. And from the fact of an alcoholic exhalation from the lungs existing for several hours after the drinking of any kind of intoxicating liquor, as appears from the odor of the breath, it is to be inferred that no healthy animal process whatever can accomplish its dissolution. The stomach and its auxiliary organs act upon the thousands of nutrient articles, decomposing them, changing their nature, and preparing them to become a component part of the organs themselves; but the versatile and wonder working agencies of animal chemistry seem powerless when brought to operate upon this uncongenial and refractory material. In the stomach it is alcohol, in the lungs it is alcohol, in brain it is alcohol: and as the organs are unable to break down its elements and render it nutritive or harmless, they throw it out at every emunctory and pore; not, however, until it has left upon the vital tissues and movements the impress of mischief, which being reiterated from day to day and year to year, brings premature decay, disease, and dissolution.

CHAPTER III.

Is there any condition of the system in health or disease, in which its use is indispensable, and for which there is not an adequate substitute?

Alcohol as a beverage.

Of the effects of alcohol as a beverage in health, there ought to be but one opinion. The whole history of spirit drinking, whether simple, or combined with the different ingredients existing in fermented or brewed liquors, affords abundant proof of its being uncongenial with the most natural and healthy actions of the bodily organs. How wide from the truth is the notion that spirit aids the stomach in the process of digestion.

Impairs digestion.

Dr. Beddoes observed that, animals to whom he had given spirits along with their food, had digested nearly one half less than other like animals to whom none had been given.' Under the habitual use of spirit, the daily dose may give a temporary alleviation to the irritated nerves of the stomach already enfeebled, but instead of conferring tone or vigor to that organ, it only serves to perpetuate its disease or debility.

In the case of St. Martin.

In the case of St. Martin, the young man before mentioned, into whose stomach through the side, a large opening was left after the healing of a severe wound, Dr. Beaumont frequently observed diseased appearances;—as,

red or purple spots upon the lining membrane of the stomach, from some of which exuded small drops of grumous blood;—aphthous or cankery patches upon the same membrane; 'the gastric fluids mixed with a large proportion of ropy mucus, and muco-purulent matter slightly tinged with blood, resembling the discharge from the bowels in some cases of dysentery.' It is worthy of remark that these beginnings of disease were not always accompanied with external signs or symptoms of disorder. When of considerable standing, however, these appearances were occasionally observed to be attended with 'an uneasy sensation and tenderness at the pit of the stomach, and some dizziness and dimness and yellowness of vision on stooping down and rising again,' also, with a brown coat upon the tongue, and a slight sallowness of the countenance.

Changes in the the stomach.

Sympathetic effects.

'Improper indulgence in eating and drinking,' says Dr. Beaumont, 'has been the most common precursor of these diseased conditions of the coats of the stomach. The free use of ardent spirits, wine, beer, or any intoxicating liquor, when continued for some days, has invariably produced these morbid changes.'

Spirit of wine produces these changes.

In evidence of the directly poisonous influence of alcoholic drinks upon the constitution, is the fact, that men long accustomed to their daily use may be taken off suddenly and entirely from them, not only without impairing the health, but with a certainty of improving it. In the summer of 1829, Mr. Powers,

Men may quit spirits suddenly.

agent and keeper of the Penitentiary at Auburn, N. Y. declared, that during several years' residence in that institution, he had never known an individual whose health had not been benefited by the total abstraction of spirit and every other stimulant drink and narcotic from his diet. This testimony is very important, inasmuch as a large proportion of the whole number of convicts when admitted to that establishment are drinkers of alcoholic liquors, from tippling to beastly drunkenness. 'These drinkers,' said Mr. P. are generally very uneasy and nervous, and sometimes greatly distressed for ten or fifteen days after being put upon water as their exclusive beverage; but after that period they have a good appetite, increase in flesh, and become healthy.' A considerable number are annually received and discharged; the average number remaining in the penitentiary, was *six hundred.* I have never seen so large a congregation of men so healthy looking as these convicts, when they came into the chapel on Sabbath morning to hear a sermon from their chaplain. Some of these men were sixty years old when admitted, and were confirmed drunkards. The evidence furnished by all our state prisons, where similar discipline is practised, is of the same character.

Auburn Prison.

A wealthy farmer in Sullivan county, New Hampshire, had been in the habit of drinking spirit for a number of years, and during the haying season he often used it freely. With more than ordinary activity of mind and a vigorous bodily constitution, he attained the age of *seven-*

ty-five years; much broken down and decayed however, under occasional attacks of gout, which he called rheumatism. At this period he broke off suddenly and wholly from the use of spirit; and within two years, that is, at the age of *seventy-seven*, he was so much recruited as to appear several years younger, and he assured me that in the last two haying seasons he had accomplished more personal labor than in any other two haying seasons for the last ten or twelve years. He expressed himself in the most decisive and energetic manner when remarking upon the effects, in his own case, of total abstinence from spirituous drinks; he had not only not been injured, but had been an unspeakable gainer by the change. This case, and others like it, show the futility of the opinion that it is unsafe for persons of any age suddenly to break the habit of spirit drinking, and that those advanced in life should either not attempt to discontinue it, or should do it in the most cautious and gradual manner. The truth is, that the effects, whether immediate or remote, of alcohol, whenever they are so distinct as to be estimated, are always those of an unnatural, unhealthy, or poisonous agent; and soon after the daily poison is withdrawn, the vital powers, relieved from their oppression, rally, the organs act with more freedom and regularity, and the whole machinery of life exhibits something like a renovation.

Case of a farmer.

Spirit has been erroneously supposed to afford a protective influence against the effects of severe cold. A sea captain of Boston, Massachusetts, informed me that in a memorable cold Friday in the

Spirit as a protection against cold.

year 1816, he was on a homeward passage off our coast not far from the latitude of Boston. Much ice made upon the ship, and every person on board was more or less frozen, excepting two individuals, and they were the only two who drank no spirit.

'In 1619, the crew of a Danish ship of *sixty* men, well supplied with provisions and ardent spirit, attempted to pass the winter in Hudson's bay; but *fifty-eight* of them died before spring. An English crew of *twenty-two* men, however, destitute of ardent spirit and obliged to be almost constantly exposed to the cold, wintered in the same bay, and only two of them died. Eight Englishmen did the same in like circumstances, and all returned to England. And four Russians, left without spirit or provisions in Spitzburgen, lived there six years and afterwards returned home.' Facts of this nature might be multiplied to any extent.

Against heat.

So far, also, from guarding the animal fabric against the depressing and irritating effects of heat, spirit tends to produce inflammatory diseases. A distinguished medical officer, Marshall, who was subjected to great exertion and exposure in a tropical climate, observes, 'I have always found that the strongest liquors were the most enervating; and this in whatever quantity they were consumed: for the daily use of spirits is an evil which retains its pernicious character through all its gradations; indulged in at all, it can produce nothing better than a diluted or mitigated kind of mischief.'

Those ships' crews who now visit hot and sickly climates without spirit, have an average of sickness and mortality strikingly less than those who continue the use of it as formerly. 'The Brig Globe, Captain Moore,' says the anniversary Report of the Pennsylvania Temperance Society for 1831, 'has lately returned from a voyage to the Pacific Ocean. She had on board a crew of ten persons, and was absent nearly eighteen months. She was, during the voyage, in almost all the climates of the world; had not one person sick on board, and brought the crew all back orderly and obedient. All these advantages Captain Moore attributes, in a great measure, to the absence of spirituous liquors. There was not one drop used in all that time; indeed there was none on board the vessel.'

Spirit as a preventive of disease.

To a place among preventives of disease, spirituous drinks can present but the most feeble claims. If, under occasional drinking during the period of alcoholic excitement, a temporary resistance may be given to those morbid influences which bring acute disease, be it occasional or epidemic, that excitement, by the immutable laws of vital action, is necessarily followed by a state of relaxation, depression, or collapse, in which the power of resistance is weakened, and this too in proportion to the previous excitement. In order therefore to obtain from alcoholic stimulus any thing like a protective influence against the exciting causes of disease, the exposure to these causes must be periodical, precisely corresponding with the stage of artificial excitation. If, however, such accuracy of adjust-

ment between the powers of vital resistance artificially excited, and the unhealthy agencies which tend to produce disease be wholly impracticable, then the danger must be increased by resorting under any circumstances to spirit as a preservative; and if not, other articles would do as well.

The best protection against disease is derived from a natural, healthy, unfluctuating state of vital action, sustained by plain articles of nutriment taken at regular intervals, uninfluenced by any innutritious stimulus which operates upon the whole nervous power. The habitual drinking of ardent spirit creates a multitude of chronic or subacute organic irritations and derangements, upon which acute disease is most easily, nay, often necessarily ingrafted; hence tiplers and drunkards, exposed to the exciting causes of inflammatory, epidemic, and contagious diseases, are liable to an attack, and when attacked, having the vital powers unnecessarily wasted, they die in larger numbers. These results are witnessed in epidemic pleurisies, lung fevers, the severe forms of influenza, pestilential fevers, and cholera.

Most appalling evidence is afforded by the history of this last disease of the pernicious influence of intoxicating liquors in preparing the human constitution for its attack. In India, Ramohun Fingee, a native physician, declares that 'people who do not take spirits or opium do not catch the disorder, even when they are with those who have it.' In the army under the command of the Marquis of Hastings in India, consisting of *eighteen thousand* men, more than half of the men died in the first *twelve days*; the

Cholera.

In India.

free use of intoxicating liquors in a hot climate will assist in explaining this extraordinary mortality.

In China, according to Dr. Reiche, 'the disease selected its victims from among such of the people as live in filth and intemperance.' China.

Mr. Huber, who saw 2160 perish in twenty-five days in one town in Russia, says, 'It is a most remarkable circumstance, that Russia. persons given to drinking have been swept away like flies. In Tiflis, containing 20,000 inhabitants, *every drunkard has fallen! all are dead—not one remains.*'

A physician of Warsaw says, 'that the disease spared all those who led regular lives, and resided in healthy situations; whereas they whose constitutions had been broken down by ex- Poland. cess and dissipation, were invariably attacked. Out of one hundred individuals destroyed by cholera, it was proved that ninety had been addicted to the free use of ardent spirits.'

In Paris, of the 30,000 persons destroyed by cholera, it is said that a great propor- France. tion were intemperate or profligate.

It has been computed that 'five-sixths of all who have fallen by this disease in England. England, were taken from the ranks of the intemperate and dissolute.'

Dr. Rhinelander, who visited Montreal during the prevalence of cholera there in the Montreal. summer of 1832, says, 'that the victims of the disease are the *intemperate*—it invariably cuts them off.' In that city, after there had been *twelve hundred* cases of the malady, a Montreal journal

states, that 'not a drunkard who has been attacked has recovered, and almost all the victims have been at least moderate drinkers.'

Dr. Sewall of Washington city, while on a visit to the cholera hospitals in the city of New York, the same season, writes to a friend, that 'of 204 cases of cholera in the Park Hospital, there were only six temperate persons, and that those had recovered, while 122 of the others, when he wrote, had died;' and that the facts were 'similar in all the other hospitals.'

New York.

In Albany, the same season, cholera prevailed for several weeks, attended with a severe mortality; and it is a remarkable fact, that during its whole period it is not known that more than two individuals, out of the five thousand members of Temperance Societies in that city, became its victims.

Albany.

WATER is the natural and proper drink of man. Indeed it is the grand beverage of organized nature. It enters largely into the composition of the blood, and juices of animals and plants, forms an important ingredient in their organized structures, and bears a fixed and unalterable relation to their whole vital economy. It was the only beverage of the human family in their primeval state.

Water, the natural beverage.

In that garden, where grew 'every tree pleasant to the sight and good for food,' producing all the richness and variety of 'fruit and flower' which an omnipotent and all-bountiful Creator could adapt to the relish of his senses, and the exigencies of his entire organization, it cannot for a moment be doubted that man was in a condition the best

suited to secure to him the uninterrupted, as well as the highest and best exercise and enjoyment, of his physical, mental, and moral powers. His drink was water. A river flowed from Paradise. From the moment that river began to 'water the garden,' till the present, no human invention has equalled this simple beverage; and all the attempts to improve it by the admixture of other substances, whether alcoholic, narcotic, or aromatic, have not only failed, but have served to deteriorate or poison it, and render it less healthful and safe.

Water adapted to man's appetite.

Water is as well adapted to man's natural appetite, as to the physical wants of his organs. A natural thirst, and the pleasure derived from its gratification, were given us to secure to the vital machinery the supply of liquid necessary to its healthy movements. When this natural thirst occurs, no drink tastes so good, and in truth none is so good as water; none possesses adaptations so exact to the vital necessities of the organs. So long as a fresh supply of liquid is not needed, so long there is not the least relish for water; it offers no temptation, while its addition to the circulating fluids would be useless, or hurtful.

Dr. Oliver.

This topic has been most ably discussed by Dr. Oliver, as follows:—'The waste of the fluid parts of our bodies requires the use of drink to repair it, and we derive a sensible gratification from quenching our thirst. What use do we make of this fact? Why, to try if we cannot find something that we shall take pleasure in drinking, whether we are thirsty or not; and in this search mankind have been remarkably successful. To

such a degree indeed have we succeeded in varying and increasing a pleasure which was designed by nature merely as an incentive to quench our thirst, that to quench thirst is become one of the last things that people drink for. It is seldom indeed that people in health have any natural thirst, except perhaps after exercise, or labor in a hot day. Under all other circumstances, we anticipate the sensation by drinking before it comes on, so as but seldom to enjoy the natural and healthful gratification of drinking because we are thirsty. Who has not observed the extreme satisfaction which children derive from quenching their thirst with pure water, and who that has perverted his appetite for drink, by stimulating his palate with bitter beer, sour cider, rum and water, and other brewages of human invention, but would be a gainer even on the score of mere animal gratification, without any reference to health, if he could bring back his vitiated taste to the simple relish of nature. Children drink because they are dry. Grown people drink, whether dry or not, because they have discovered a way of making drinking pleasant. Children drink water because this is a beverage of Nature's own brewing, which she has made for the purpose of quenching a natural thirst. Grown people drink any thing but water, because this fluid is intended to quench only a natural thirst, and natural thirst is a thing which they seldom feel.

'One of the evils, though not the only or the greatest one, of perverting the natural appetite of thirst, is, that it leaves us without a guide to direct us when we need drink, and when we do

not. There is no danger, it is true, that this want will mislead us into drinking too little; the danger is, that we shall be betrayed into drinking too much, *i. e.* when nature does not require it; and such no doubt is frequently the case. If a man is fond of some particular drink (and most people I believe have their favorite liquor,) he will be tempted to take it when he does not really need it. This consideration points out the wisdom of nature in providing for us a beverage which has nothing to tempt us to drink, except when we are really thirsty. At all other times, water is either perfectly indifferent, or it is disagreeable to us; but when we labor under thirst, *i. e.*, when nature requires drink, nothing is so delicious to a pure, unadulterated taste. While we adhere to this simple beverage we shall be sure to have an unerring prompter to remind us when we really require drink; and we shall be in no danger of being tempted to drink when nature requires it not. But the moment we depart from pure water, we lose this inestimable guide, and are left, not to the real instincts of nature, but to an artificial taste in deciding on actions intimately connected with health and long life. What is more common than for a man to take a glass of beer, or cider, or wine, or rum and water, not because he is thirsty, and really needs drink, but because opportunity makes it convenient, and he thinks it will taste well. And this is true, not only of fermented or distilled liquors which are directly injurious in other modes, but in a less degeee of any addition made to pure water to make it more palatable. Let me not be misunderstood. I am far from insinuating

that lemonade, soda water, and milk and water, are hurtful drinks. Far from it. But I say, that in using even these mild and healthful beverages we lose one important advantage we should derive from the use of pure water alone. If they are more palatable to us than water (and otherwise we should have no motive to use them,) we shall be tempted to take them oftener, and in greater quantities than is required by nature, and may thus unconsciously do ourselves an injury. It is rare for a person to drink a glass of water when he is not thirsty, merely for the pleasure of drinking; and as thirst is the natural guide, if he drinks when not thirsty, he takes more fluid than nature points out as proper; and so far violates one of her obvious laws. But it may be asked if any injury can result from drinking more than nature absolutely requires. Not perhaps in particular instances, but the habit of drinking more may undoubtedly be injurious. It is a sufficient answer to all these questions to say that our Creator knows best. Under the guidance of the instincts he has implanted in us we are safe. But as soon as we leave these, and place ourselves under the direction of our own educated appetites, we are constantly liable to be led into danger. It is certainly hurtful to drink habitually more than was intended by nature, because it imposes upon the constitution the task of removing the excess; or else it is retained in the system, and there may lead to dropsy, or some other of the consequences of plethora, or redundance of fluids in the system.'

Dr. Cullen, formerly a distinguished professor

of Medicine at Edinburgh, after speaking of the general use of water, both by man and the brute creation, remarks,—'Simple water is, without any addition, the proper drink of mankind.' Dr. Cullen.

Dr. Gregory, the successor of Cullen, in his Conspectus Medicinæ Theoreticæ, says, that 'pure spring water, when fresh and cold, is the most wholesome drink, and the most grateful to those who are thirsty, whether they be sick or well; it quenches thirst, cools the body, dilutes, and thereby obtunds acrimony—often promotes sweat, expels noxious matters, resists putrefaction, aids digestion, and, in fine, strengthens the stomach.' Dr. Gregory.

Dr. James Johnson, an eminent physician now residing in London, remarks upon water as follows: 'There can be no question that water is the best and the only drink which nature has designed for man; and there is as little doubt but that every person might, gradually, or even pretty quickly, accustom himself to this aqueous beverage. The water drinker glides tranquilly through life without much exhilaration, or depression, and escapes many diseases to which he would otherwise be subject. The wine drinker experiences short but vivid periods of rapture, and long intervals of gloom; he is also more subject to disease. The balance of enjoyment then, turns decidedly in favor of the water drinker, leaving out his temporal prosperity and future anticipations; and the nearer we keep to his regimen, the happier we shall be.' Dr. J. Johnson.

How congenial is this fluid to the human organization, adapted as it is to its necessities under

every variety of constitution, and vicissitude of climate, from the equator to the arctic circles. Dr. Mitchel, in reference to facts already quoted, and others like them, respecting ships' crews wintering in icy regions, says, 'that in all the frequent attempts to sustain the intense cold of winter in the arctic regions, particularly in Hudson's Bay, Greenland, and Spitzbergen, those crews or companies which had been well supplied with provisions and liquors, and enabled thereby to indulge in indolence and free drinking, have generally perished; while at the same time the greatest number of survivors have been uniformly found among those who were accidentally thrown upon the inhospitable shores, destitute of food and spirituous liquors, compelled to maintain an incessant struggle against the rigors of the climate in procuring food, and obliged to use water alone as drink.'

Dr. Mitchel.

In hot climates, too, water is the only safe drink. Dr. Mosely, on tropical diseases, uses the following language: 'I aver, from my own knowledge and custom, as well as from the custom and observations of others, that those who drink nothing but water, or make it their principal drink, are but little affected by the climate, and can undergo the greatest fatigue without inconvenience.'

Dr. Mosely.

The Arabs of the desert are among the most hardy of the human race, enduring the greatest fatigue and exposure under a burning sun, and their habitual drink is water.

Arabs.

The effects of water drinking in a burning climate are well marked in the following account

given by Mr., afterwards Sir James M'Gregor, of the march in Egypt of a division of the British army sent from Hindostan to aid the main army in opposing the French under Napoleon. 'After crossing the Great Desert in July 1801, from a difficulty in procuring carriage, no ardent spirit was issued to the troops in upper Egypt. At this time there was much duty of fatigue, which, for want of followers, was done by the soldiers themselves; the other duties were severe upon them; they were frequently exercised, and were much in the sun; the heat was excessive: in the soldiers' tents in the middle of the day the mercury in the thermometer of Fahrenheit stood at from 114 degrees to 118 degrees, but at no time was the Indian army so healthy.'

Sir J. M'Gregor in Egypt.

Dr. Johnson, from whom an opinion on the superiority of water to wine as a beverage has already been given, remarks, in his Tropical Hygiene, that 'it might appear very reasonable that in a climate where ennui reigns triumphant, and an unaccountable languor pervades both mind and body, we should cheer our drooping spirits with the mirth-stirring bowl; a precept which Hafiz has repeatedly enjoined. But Hafiz, though an excellent poet, and, like his predecessor, Homer, a votary of Bacchus, was not much of a physician; and without doubt his '*liquid ruby*,' as he calls it, is one of the worst of all prescriptions for a 'pensive heart.' I remember a gentleman at Prince of Wales' Island, (Mr. S.) some years ago, who was remarkable for his convivial talents, and flow of spirits. The first time I happened to be in a large company

Remarks and case by Dr. Johnson.

with him, I attributed his animation and hilarity to the wine, and expected to see them flag, as is usual, when the first effects of the bottle were past off; but I was surprised to find them maintain a uniform level, after many younger heroes had bowed to the rosy god. I now contrived to get near him and enter into a conversation, when he disclosed the secret, by assuring me he had drunk nothing but water for many years in India: that in consequence his health was excellent—his spirits free—his mental faculties unclouded, although far advanced on time's list; in short, that he could conscientiously recommend the 'antediluvian' beverage, as he termed it, to every one that sojourned in a tropical climate.'*

Facts and opinions, corresponding with the foregoing, from physicians and others, might be cited to a much greater extent, but it is deemed unnecessary. Not only at the present day, but in times gone by, and even far back up to the remote periods of regular medicine, eminent physicians have commended water as the best, or as

Eminent physicians in different ages commend water as a drink.

* Hon. J. S. Buckingham, Esq., member of Parliament, says, that 'the finest and strongest men he ever saw in his life, were a tribe residing upon the Himalaya mountains. They came to Calcutta as Athletæ, to show their skill in wrestling, boxing, throwing the quoit, and other athletic exercises; they were pitted against British grenadiers and sailors, the strongest that could be found; the result was that one of them was a match for any three, and yet these men never tasted any drink stronger than milk or water, from their infancy upwards. He had himself traveled from Diarbekir to Bagdad, a distance of eight hundred miles, on horseback in ten days, with the thermometer ranging from 100 at sunrise, to 125 or 130 degrees in the

the only proper and healthful beverage for man. Among them may be mentioned Parr, Cheyne, Arbuthnot, Sydenham, Haller, Stahl, Van Swieten, Bœrhaave, Hoffmann, and even Celsus, Galen, and Hippocrates. These were like so many meteors shooting here and there amid the darkness which for ages hung over men's minds; but upon this darkness a broad light has at length broken, which, it is believed, is a sure presage of 'perfect day.' The experiment has been made on a large scale, and many thousands of witnesses in our country may now be referred to for an opinion furnished by their own personal experience, on the effects of water as the habitual and only drink. Multitudes of farmers, mechanics, manufacturers, sea-faring, and professional men, give their voice in its favor.*

afternoon, without drinking any thing but water, and he was as fresh and as strong at the end of his journey as when he set out.'

* 'More than 1000 American vessels are now afloat on the ocean in which ardent spirit is not used.'—*Annual Report of the American Temperance Society.* May, 1834.

Of 186 whaling vessels belonging to New Bedford, Massachusetts, 168 furnish no spirits for their crews; and the uniform opinion of the owners and captains of these, as well as of merchant vessels in different ports, as furnished to the executive committee of the New York State Temperance Society is, that the use of intoxicating drinks for sea-faring men in any climate, and under any circumstances, are not necessary, but injurious; and they assert that observation and experience prove that sailors are more healthy, more orderly, and perform their duty altogether better without these liquors. *Vide* 'Testimony of American merchants and sea captains.'—*American Quarterly Temperance Magazine for August*, 1834.

So fully impressed are commercial men with the belief

Alcohol as a vehicle for medicines.

As a vehicle for medicinal agents, alcohol has held a distinguished place. An extensive list of *tinctures*, or spirituous infusions of vegetable articles, and of alcoholic solutions of mineral substances, is still found in our dispensatories. In a highly scientific work of this kind, lately published in this country, there are given the methods of preparing about one hundred and fifty tinctures!

Vegetable tonics.

The tonic barks, and roots, and woods, impart more or less their medicinal properties to distilled spirit; and thus imparted, these properties are preserved for a considerable length of time. Of these preparations, however, it may be observed, that the spirit often

that disasters at sea are very often connected with the use of intoxicating drinks, that an insurance company in Boston, and more recently all the marine insurance companies in New York, in all amounting to ten, have engaged to return five per cent. on the premium of every vessel navigated without spirit.

'At a meeting of the board of underwriters, held at the office of the American Insurance Company, in the city of New York, on the second of October, 1834, it was

Resolved, That the different marine insurance companies in the city of New York will allow a deduction of five per cent. on the net premiums which may be taken after this date on all vessels, and on vessels together with their outfits, if on whaling and sealing voyages, terminating without loss, provided the master and mate make affidavit, after the termination of the risk, that no ardent spirits had been drunk on board the vessel by the officers and crew during the voyage or term for which the vessel or outfits were insured.

WILLIAM NEILSON, President.

Walter R. Jones, Secretary of the Board.'

Vide American Quarterly Temperance Magazine for November, 1834.

so modifies the impression made upon the stomach, brain, or blood vessels, as to prevent their being given in doses sufficient for the objects intended. This is the case in certain forms of gastric and intestinal irritation, accompanied with an unnatural irritability, not only of the ganglionic nerves, but of those belonging to the cerebro-spinal system. Cases not unfrequently occur where the decoction or *watery* infusion of the Peruvian bark is altogether preferable to the tincture; and perhaps there is never a case in which some preparation of quinia, as the sulphate for example, is not decidedly better for the patient than any alcoholic infusion of the bark.

Opium.

The spirituous preparations of opium are in many, if not in all cases, inferior to the black drop. The stomach has been known, in a state of great irritability after excessive vomiting, to retain the black drop, or one of the salts of morphia, when the tincture of opium was perseveringly rejected.

For external application.

In those cases of excessive irritability of the stomach, accompanied with spasms of its muscular coat, and also that of the intestines, in which external anodyne applications are indicated, the warm black drop upon the abdomen, or the (dry) acetate of morphia applied to a blistered surface, is altogether more efficient than the tincture of opium. I have repeatedly witnessed a much happier effect from the simple acetous solution of opium locally applied, than from the spirituous solutions, in relieving the agonizing pain of phlegmasia dolens.

The medicinal qualities of the tonic and nar-

Chemical preparations of vegetable medicines preferable to the spirituous.

cotic vegetables may be preserved without decay in the form of the elegant preparations, which owe their existence to the perfection in chemical processes invented in our own times; and these preparations may be employed without alcoholic or any other admixtures which would serve to modify or impair their effects. The *materia medica* then would sustain no loss if alcohol were wholly given up as a vehicle for these classes of medicines. The same is true of its combination with the active principle of the Spanish fly. This article yields to water and to vinegar its active properties. A strong vinegar of flies is a better vesicant than the alcoholic infusion; and the chemical extract named cantharidin unites readily with oil as a vehicle, and in this form may be most conveniently employed for the purpose of making a blister.

Essential oils, balsams, &c.

The essential oils, the balsams, and the resins, may unite with, or become diffused in water by the aid of sugar and gum arabic, or by the admixture of ammonia, where this can be done without too far modifying their medicinal effects.

Emulsions.

These mixtures, called *emulsions*, admit of the medicinal article being taken at any requisite degree of dilution. They are greatly to be preferred to the alcoholic solutions, inasmuch as these last are precipitated in the form of a white or brown cloud, or in a mass of small globules the moment they are thrown into water, and are thus less equably diffused in the water than when combined with it through the medium

of sugar, or some other suitable article. Camphor may be very effectually comminuted and diffused in water by rubbing it with calcined magnesia, and adding water slowly.* This is a more uniform mixture, and more convenient for internal exhibition, than can be made by mixing the spirituous solution with water. Camphor.

The emulsions then of these articles, as medicines to be taken into the stomach, are decidedly preferable to the alcoholic solutions, or tinctures as they are called. If an attempt be made to swallow these tinctures without diluting them, they are not only found too pungent, or acrid, but they are at once precipitated by the fluids of the mouth and throat; and when the tincture of guaiacum or of tolu is taken, the resinous matter is at once spread out upon the surface of the tongue and mouth in the form of an adhesive coating or varnish, which is dislodged with difficulty.

As a remedy itself, in various forms of disease alcoholic stimulus has long been regarded with high consideration. In the slight departures from the equable healthy living actions of the body, marked by exhaustion from fatigue, loss of blood, hunger, thirst, and exposure to great heat or cold, which approach the state of syncope or fainting, some kind of intoxicating liquor is generally resorted to as if it were the only remedy; but in some of these states this kind of stimulus is not quite safe, and in none of them is it absolutely necessary. Alcohol as a medicine. In slight departures from healthy action.

* 'Camphor is soluble in strong acetic acid.'—*Turner's Chemistry.*

A draught of bland liquid, as simple water, or sweetened water, or milk and water, or cocoa, or some other simple nutritious substance, as some liquid farinaceous preparation, or the pulpy or juicy part of fruits; or the tea of some aromatic herb; or a drop or two of one of the essential oils, as those of the mint tribe, diffused in water by the aid of sugar, or a small dose of carbonate of ammonia; or simple ammonia well diluted with water—taken, one or more of them, at a temperature suited to the state of the stomach and of the circulation, and repeated at proper intervals, will accomplish every good purpose of alcoholic stimulants, and in most cases with less exposure of some of the functions to undue or dangerous excitation. In the prostration, for example, occasioned by long exposure to cold, the introduction of a stimulus so exciting and uncongenial as distilled spirit into the stomach, makes an impression upon its nerves too strong and unnatural, and a transition from a state of languor and exhaustion to that of activity, too sudden to comport with an economical expenditure of the vital power, tending to create a predisposition to some form of disease, if not speedily to excite it.*

Various substitutes.

In a complete *syncope*, or fainting fit, cold water dashed upon the head

In a fainting fit.

* Captain Harding gives his own experience as follows: 'In answer to your eighth question I say, that when I was in the habit of using ardent spirits when wet and fatigued at sea, on going below to refresh and shift myself, I thought a *little toddy* was absolutely necessary to prevent taking cold; but now that I am more than fifty years old, I can get wet, cold, and fatigued, go below and put on dry clothes, and, if thirsty, take a drink of water, and

and face; ammonia, or some essential oil, or both, passed into the nostrils, or into the mouth and throat, will do more than any preparation of alcohol, towards a speedy and effectual resuscitation.

Ammonia and the essential oils exert an agency different in kind from that made by alcohol. If in a sense they are *diffusible*, their impressions bring readily transmitted from one part to another, they are not intoxicating. They seem to stimulate the brain only indirectly, perhaps through the medium of a slightly increased action of the bloodvessels, causing like muscular exertion a brisker motion of the blood in the brain; but they do not make the same apparently direct, unnatural, poisonous, bewildering, and exhausting impression upon the whole power of the brain and nerves as that which is derived from alcoholic stimulus.

In *dyspepsia* the alcoholic treatment is now fortunately almost universally abandoned. Dyspepsia. Experience has at length taught physicians that the irritations, chronic or subacute, of the lining membrane of the alimentary canal, the capricious excitements of the nervous system, and the slight but obstinate deviations from the healthy standard in the circulation, may be more easily and permanently controlled, under the influence of a plain diet, suitable clothing, bathing, frictions, ex-

feel no inconvenience whatever; so that in this case I answer from actual experience.

SAMUEL HARDING, master, ship Romulus,
of Brunswick, Me.'

Vide Letter to Mr. Delavan, American Quarterly Temperance Magazine for August, 1834.

ercise in the open air, proper hours for sleep, and a light and agreeable occupation of the mind, than under the use of any kind of intoxicating drink, in any manner administered.

Scrofula. In *strumous* constitutions, and under the local developments of *scrofula*, ardent spirit was formerly employed. But who, at this day, would think of placing it in competition with the preparations of iodine, employed at the hospital of St. Louis in Paris, and in other places, joined with proper diet, bathing, frictions, exercise, air, &c.?

In the whole range of *nervous diseases* alcohol, in any shape, is entitled to but very limited confidence. It seems to be incapable of doing any thing better than to cause a transient alleviation, while its ultimate effects are pernicious; with the exception perhaps of that state of the brain and nerves exemplified in *traumatic tetanus*, which requires a narcotic influence. For this purpose the combinations of morphia, either internally given, or externally applied, especially to a blistered surface, are to be preferred. A tonic or sustaining power in the treatment of this disorder may better be derived from the judicious use, in addition to the morphia, of some vegetable tonic, as the sulphate of quinia, joined perhaps with carbonate of ammonia, than from spirituous drinks.

Nervous diseases.

In *inflammations*, whether deep-seated or superficial, the vascular and nervous irritations are usually observed to be increased by the use of alcoholic liquors, sometimes a soothing effect is seen to follow the appli-

Inflammations.

cation of spirit to an inflamed part. But how is this accomplished, if the internal exhibition of it be pernicious? Without much doubt, by the great abstraction of morbid heat caused by the rapid evaporation of the spirit from the inflamed part, and by its anodyne or stupifying influence which is ultimately exerted upon the irritated nerves, unremittingly drenched in it by its persevering application. The brain, at the same time, and the nerves not directly involved in the inflammation, receive but a slight impulse from the spirit so circumscribed in its application; the morbid impression they may receive from the medicine being more than compensated for by the diminution of local heat and irritation.

But all the anodyne effects of spirit in such cases, as well as that by which heat is abstracted, may be had from other agents. Watery infusion of opium, or the solution of the salts of morphia, or a poultice of the petals of the poppy, and as a lotion to cool the part, simple water will accomplish every good object that can be obtained from the spirit. Besides, the persevering local use of alcohol appears to enfeeble, as it might be expected to do, the vital powers of the part, while water may be applied for any length of time required by the inflammation, without an undue local exhaustion of vitality.

In a case of simple fracture of the leg of a boy, several years ago, in which common spirit diluted with water was locally employed for two or three weeks, there was in five weeks so slight a union of the fracture that a very small force broke it down. This effect seemed fairly to be attributable, chiefly

at least, to the influence of the spirit, in part over and above what resulted from the escape of heat by evaporation; especially as the limb was so covered as to prevent the sensation of cold, the fragments were kept in undisturbed contact, and the general health was pretty good. A considerable number of surgeons at the present day prefer simple water to every other lotion for the purpose of moderating excessive excitement in local inflammation.

Gangrene or mortification.

In the treatment of *gangrene*, intoxicating drinks bear no comparison with opium or the salts of morphia, carbonate of ammonia, and sulphate of quinia.

Fevers.

To the morbid conditions of the *system* in *fevers*, alcohol, as a remedial agent, is far from being well adapted. It bears no comparison with the sulphate of quinia as an article suited to break up the morbid associations in intermittent and remittent fevers after suitable evacuations.

Intermittent and remittent.

Continued.

In the *apyrexia*, or remission of the paroxysm of *continued fever*, there are probably but few physicians in our country who have seen a large febrile practice during the last twenty-five years, who have not had occasion to regret its unfavorable effects. Under the stimulant practice, trains of morbid symptoms are often aggravated, new centres of irritation established, and which, if not sufficient to destroy the patient, prolong the period of the fever, and frequently cause relapses, or a lingering and interrupted convalescence. In the occasional states of depression occurring in continued fever, those internal stimulants should

be preferred, if any be used, which exhaust the nervous power less than the intoxicating articles. In this connexion may be named the carbonate of ammonia, camphor, and some of the essential oils.

Cholera.

In the collapse and prostration of cholera the *spirit practice* is now very generally acknowledged to have been unfortunate. Indeed it would have been remarkable if an article which so strongly predisposes to this disease as alcoholic stimulus should have proved to be its best remedy. The evidence of the mischievous effects of spirituous drinks in cholera is too generally diffused to require its being introduced here in a formal manner. Ice, cold water, or even ice in small bits, swallowed at short intervals, may be more relied on for allaying the deadly nausea of cholera than any form of intoxicating liquor. For the purpose of restoring the strength in the debility which follows acute disease, is alcohol necessary?

In debility after acute disease.

If the fever or inflammation have been early treated with the proper evacuants, and the progress duly watched, and local determinations prevented or obviated, the debility which remains on the subsidence of the disease is easily removed The patient may be greatly reduced in strength, but when free from disease, his convalescence is rapid under the most simple treatment. But when the stimulant plan has been perseveringly pursued with a view to remove the disease, or the debility subsequent to it, how often if the constitution can resist the action both of the disease and the medicines, is the patient observed to linger for weeks, and perhaps months, before his health is re-esta-

blished; and how often is he subjected to some new form of disease, either subacute or chronic, or perhaps both in succession; a cough, or difficult breathing from bronchial or thoracic irritation or effusion, an enfeebled and irregular action of the alimentive organs, a swollen limb, &c. In illustration of these remarks, the following sketches of actual cases are given, the facts of which may be fully relied on.

Cases.

Dr. R., æt. twenty-five, possessing a good constitution, had, in February 1806, a severe typhus fever which showed symptoms of crisis on the twentieth day. He took, early in the disease, purgative doses containing calomel, and afterwards small doses at short intervals of the same article, which in ten or twelve days occasioned a slight soreness of the mouth; soon after this, aphthæ being observed in the throat, bark and wine were prescribed. The bark however was soon omitted on account of the great distress it seemed to have occasioned at the pit of the stomach, but the wine was continued. In three or four days after the symptoms of crisis were observed, a cough arose which was very troublesome for about a week, but as it subsided a swelling attended with pain and heat seized the whole left lower limb. In six weeks from the attack of the fever the patient began by the aid of a staff to hobble out of his chamber. The swelling of the limb, however, although bandaging was employed for several weeks, was never wholly removed; and from that day to the present, upwards of twenty-seven years, the leg has exhibited a varicose state of its superficial veins, and the whole

limb including the foot has been larger and less vigorous than the other, proving that its organization was permanently affected. Before the fever, and until after the crisis, this limb was, in the estimation of the patient, as sound in every respect as the other. If in this case the processes of nature had not been interfered with by an unnatural excitation of the nerves and bloodvessels, is it probable that any form of local disease would have shown itself simply as the effect of the fever? One result, rather inconvenient to the patient as he has often remarked, of the use of wine during his convalescence was the acquisition of a strong relish for that beverage which he had never before felt, and which at various periods since it has required some effort properly to control.

'Mr. F., æt. eighteen, tall, and of fair complexion, having I believe always enjoyed good health, was attacked with continued fever in autumn. He was bled repeatedly, and took purgatives and antimonials. At the end of the second week it was thought that he would bear tonics. Mild articles were resorted to, and continued about a week. The symptoms remaining nearly the same, sulphate of quinia and wine were prescribed. In a few days he had cough and difficult breathing, with symptoms of effusion in the chest. Auscultation readily detected a fluid in the right cavity. Blisters and diuretics with active cathartics were now employed. He was soon relieved, and in about a week his symptoms were very much as when he began to take the wine and quinia, excepting that the debility was greater. Wine and the sulphate of quinia were again given, and

soon the same train of symptoms appeared as before, with an effusion of fluid ,in the left cavity of the chest. Under the use of diuretics and blisters, these symptoms were removed.

A third time the wine and quinia were resorted to, and the result was a swelling of one of the lower limbs with heat and pain, resembling somewhat the appearances in phlegmasia dolens. All tonics and stimulants were now laid aside, and at a time when he was unable to turn himself in bed. A mild diet was now prescribed, together with ablutions and frictions; and he very gradually and uniformly recovered, so as to have acquired a tolerable degree of health in about four months.

In the course of the treatment, valerian, carbonate of soda, carbonate of ammonia, camphor, serpentaria, and sulphuric acid, were employed. We varied the combination of the medicines a great many times; a measure which seemed to be rendered necessary by the sickness at stomach which invariably followed each combination in a day or two. At the time when he rejected stimulants, and in fact all medicines, he could retain articles of food.'

Mr. H., æt. twenty-five, of a fine constitution, had remittent fever. In one full day of his sickness, that is in twenty-four hours, he took three pints of brandy, and in addition, a small pill of opium every two hours, besides a small dose of sulphate of quinia at the same interval through the night. Spirit was taken freely for several days, although the quantity, as well as that of the opium and quinia, cannot be vouched for. Two years after this sickness the patient had not re-

covered his health, but was still feeble, with impaired digestion, and swollen limbs.

There is probably no case in which pure wine would not answer as good a purpose as ardent spirit; especially if the acidity of stomach rarely attending its use should be corrected by some alkaline article; and there is one ground of preference due to wine, if the use of any sort of intoxicating liquor be insisted upon, namely, that it is probably rather less liable to establish the habit of intemperate drinking than distilled spirit.

But there are agents of higher importance than alcohol or fermented liquors, which may safely be employed to sustain the sinking powers in fevers, and to restore the lost strength after they have subsided.

Air a tonic.

Of these, the first to be named is *pure air*. 'I believe,' says Mr. James in his valuable work on inflammation, 'there is no poison more injurious than foul air—no restorative more effectual than pure air; and it runs no risk of disordering the digestive organs, as bark often does, or stimulating the vessels too much, like wine.' The restorative powers of the blood depend on its purity, and the purity of this fluid cannot be secured without pure air; hence the absolute necessity of the most strict and persevering attention to ventilation and cleanliness.

Water.

Another agent is *water*. This is the proper beverage when a beverage is needed. Nothing is so grateful in the thirst of fever, and nothing so good; and its febrifuge, as well as tonic or invigorating power, judiciously applied to the surface of

Applied to the surface of the body.

the body is most striking. Either pure, or impregnated with soap, or saline substances, it may be used by way of affusion, ablution, or sponging, at a temperature warm, cool, or cold, according to circumstances. The successful use of cold water by Dr. Currie applied to the body in fevers is well known.

Dr. R. Jackson's remarks.

Dr. Robert Jackson, speaking of the fevers of Jamaica, says, that 'after obviating particular symptoms of a fatal tendency, it was the principal indication to support the general powers of life, or to excite the tone and vigor of the system.' For this purpose he mentions 'cold bathing' as 'the most important remedy in the cure of the fevers of the West Indies.' For the purpose of removing the prostration and languor accompanying a form of fever prone to attack foreigners arriving in hot climates, he observes, that 'the principal trust was placed in warm and cold bathing, which under proper management seldom failed of answering every expectation completely, or of speedily removing the chief symptoms of danger.' This gentleman was in the habit of frequently impregnating the water strongly with common salt.

Often have I witnessed in fits of distressing prostration, joined sometimes with great irritability of the nerves, both during and after the subsidence of the severity of acute disease, a far more refreshing and invigorating effect from sponging the head,* body, and limbs with simple water, or weak warm soap-suds, followed by gentle friction, than from any doses of spirit, wine,

* The hair having been previously sheared off.

or porter, I have ever seen administered. It is a striking remark of the celebrated Hoffman, that if there be in nature a universal remedy, that remedy is water.'

Among the means of restoring the strength, one of great value is exercise, especially in the open air. Indeed there seems to be no adequate substitute for this remedy. Who has not felt its invigorating effects? Dr. Jackson, already quoted, observed the most happy effects in the restoration of the bodily powers reduced by yellow fever, from his patients when too weak to raise their heads, being carried out daily in carts or wagons. Passive exercise in the sick chamber, or the removal from it to an adjoining room on a trucklebed or chair, may be made very useful to the sick patient, when his strength is too much reduced to admit of his being carried abroad.

In addition to the common articles of plain, unstimulating food, may be mentioned as an important restorative agent, fresh, ripe fruit. This, especially if acidulo-saccharine and juicy, often presents to the stomach precisely the stimulus it craves, and may be borne when spirit and wine cannot be taken without disturbing the circulation. The man who shall invent a cheap and easy method of preserving without decay the well ripened, juicy, and pulpy fruits, will be entitled to the thanks of succeeding generations. Could the grape, instead of being manufactured into wine, be carried fresh and distributed freely in distant countries, in place of the intoxicating liquor with which it now supplies them, an unspeakable

amount of health and comfort would result to the human family.

With prescribed attention to ventilation, cleanliness, ablutions, and frictions, plain, nourishing food, including often fresh fruits, joined with early and persevering exercise, I have known patients to recover with a rapidity greater than I remember to have observed from any use whatever of intoxicating drinks and narcotics.

Under a more perfect acquaintance with the functions of life, and with the influences exerted upon it by remedial agents, may it not be hoped that the period will arrive when not only ardent spirit, but all intoxicating liquors, will be regarded as not absolutely necessary in the practice of physic or surgery? It may perhaps be worth remarking, that throughout the wide-spread kingdoms of animal and vegetable nature, not a particle of alcohol in any form or combination whatever has been found as the effect of a single living process, but that it arises only out of the decay, the dissolution, and the wreck of organized matter, or of its ever varied and wonderful productions; and is it probable that the beneficent author of such a countless multitude of medicinal agents as exist in the products of vital action, would have left, to be generated among the results of destructive chemistry, an article essential to the successful treatment even of a single disease?

Alcohol never the effect of vegetable or animal secretion.

The profession of medicine has an extensive scope. It looks into the structure of animal machinery, it investigates the laws of its vital movements, both

Objects of the medical profession.

in health and disease, and contemplates a variety of influences by which its complicated processes are accelerated, retarded, suspended, or destroyed. It learns, that to the functions of life belongs a standard rate of action, beyond which they cannot be safely excited or driven; that alcoholic and narcotic stimulants derange and confuse the healthy movements, exhaust the vital power more than nature intended, and induce premature decay, and dissolution. This profession claims the strictest alliance with the cause of humanity; it cherishes good will, and proffers substantial blessings to men. It extends its hand not only to the exhausted, bed-ridden patient, and to the tottering and dejected invalid, but even to the healthy man, to save him from the pain and suffering which ignorance, or custom, or recklessness might bring upon him.

Let physicians then be true to their profession. Let them study the duties they owe to the communities with whom they live and labor. Let them teach the means of preserving health, as well as of combating disease; let them show, as it is in their power to do, that the taking of medicine in health in order to prevent disease is most absurd and mischievous; that the surest guarantee of health is a correct regimen, and that the best treatment of acute disease is often very simple.

Let them explain, as far as practicable to those around them, the mechanism of their physical organization, and when it can be done, 'knife in hand,' the work will be easy. Let them expound, so far as known, the beautiful and harmonious laws enstamped upon this organization, by which

its complicated movements and diversified phenomena are sustained; laws as immutable in their nature, and inflexible in their operation, as those that hold the planetary system together; and like them originating in the same incomprehensible and mighty mind, which, acting in the strength of its own philanthropy and unchangeableness, gave to man a moral code from amidst the smoke and thunders of Sinai. No law coming from this high source can be violated with impunity; and he who infringes a law of the vital economy, receives, in an injury done to the machinery of life, the penalty of his transgression with no less certainty than he who leaps from a tower heedless of gravitation. With all its given power of accommodation to circumstances, no possible training or education of this machinery can change the nature of its primitive adaptations, and make an article congenial and healthful, which was originally repulsive and noxious. No human ingenuity or perseverance can render impure air as wholesome as that which is pure, or any form of intoxicating liquor as healthful as water.

So long as alcohol retains a place among sick patients, so long there will be drunkards; and who would undertake to estimate the amount of responsibility assumed by that physician who prescribes to the enfeebled, dyspeptic patient the daily internal use of spirit, while at the same time he knows that this simple prescription may ultimately ruin his health, make him a vagabond, shorten his life, and cut him off from the hope of heaven. Time was when it was used only as a medicine, and who will dare to offer a guaranty

that it shall not again overspread the world with disease and death?

Ardent spirit—already under sentence of public condemnation, and with the prospect of undergoing an entire exclusion from the social circle, and the domestic fire-side—still lingers in the sick chamber, the companion and pretended friend of its suffering inmates. It rests with medical men to say how long this unalterable, unrelenting foe of the human race shall remain secure in this sacred, but usurped retreat. They have the power, and theirs is the duty to perform the mighty exorcism. Let the united effort soon be made, and the fiend be thrust forth from this strong but unnatural alliance and companionship with men, and cast into that 'outer darkness' which lies beyond the precincts of human suffering and human enjoyment.

AN ESSAY

ON THE

ORIGIN AND INTRODUCTION INTO MEDICAL PRACTICE, &c. &c.,

OF

ARDENT SPIRITS.

Pallor et genæ, pendulæ oculorum ulcera, tremulæ manus, furiales somni, inquies nocturna.—Pliny.

By HARVEY LINDSLY, M. D.

The author of the following Essay has deviated somewhat from the plan contained in the original advertisement of the Prize Committee. But he has omitted nothing referred to by them; and his object in embracing more, was to form a work which, while it would answer the purpose intended by the Committee, might also serve as a book of medical reference for the whole subject of intemperance.

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CHAPTER I.

Origin of Ardent Spirits.

We shall perhaps be as unsuccessful as those who have preceded us, in the attempt to ascertain the precise period of the discovery of alcohol. But although we may not succeed in the main object of our pursuit, yet it will not be uninteresting to collect what is known in relation to this subject; and to trace the gradual steps by which the process of distillation has advanced from the rude manner in which it was practised by its first inventors to the present perfect and convenient mode.

Much discussion has taken place among historians and antiquaries on the question whether distillation was known at all by the ancients. Some contending that it was practised before and during the time of our Saviour, and others that it was discovered by the alchymists as late as the eighth century.

We have every reason to suppose that it was entirely unknown to the sacred writers of the old Testament, as no mention of it is any where to be found among them: and we cannot doubt that it would have been referred to had any such process been in vogue during the period at which these works were written. It has been asserted by some that the use of the still was partially known in our Lord's time, as, say they, he alluded to the distillation of herbs for medicinal purposes, when he employed, in Matthew vi. 30, the word χλιβανον, speaking of the grass of the field 'which today is, and tomorrow is cast into the oven,' or according to others it should be translated 'into the still.' But this idea seems rather fanciful, as there is nothing in any other author to corroborate it.*

The most ancient physicians, whose writings have descended to us, seem entirely ignorant of the mode of extracting any of the essential oils by steam or vapor. In the works of Hippocrates, who flourished 400 years before the Christian era, not a single word can be found which would induce us to think that an alembic or retort had been used by him for medicinal or any other purposes.

Although the ancients were thus ignorant of the mode of obtaining by distillation a liquor of a stronger intoxicating power than their wines, yet they contrived to add somewhat to the strength of the latter by other means. In order to increase the inebriating effect of wine, as well as to im-

* Morewood's Essay, p. 11.

prove its flavor (ut odor vino contingat, et saporis quædam acumina), it was not unusual to sprinkle pounded pitch* or resin on the must, or to infuse the flowers of the vine, the leaves of the pine or cypress, bruised myrtle berries, the shavings of cedar-wood, southern-wood, bitter almonds, and a great variety of other articles. Indeed, from the great attention which was paid to this subject by the ancients, from the skill displayed in the evaporation of must as well as on account of the extensive scale in which it was carried on, it seems surprising that they had not discovered the mode of extracting brandy by distillation.

Salt, and occasionally even honey, were anciently employed for the purpose of preserving dead bodies. Pharnaces placed the dead body of his father Mithridates in salt brine in order to send it to Pompey.† Eunapius also in the fifth century speaks of the heads of martyrs being preserved in salt,‡ and we are told by Sigebert, who died in 1113, that even then the same process was employed with the body of St. Guibert, that it might be kept during a journey in summer.§ We may suppose from this circumstance that spirit of wine or alcohol was not known, or at least was not in common use as late as the beginning of the twelfth century, for had it been it would no doubt have been used for this purpose instead of salt.

* Henderson on Wines—London, 1824—p. 44.

† Salis natura, corpora adstringans, siccans, alligans: defuncta etiam a putrescendo vindicans, ut durent ita per sæcula.—Plin. lib. 31. cap. 9.

‡ Eunapius in Aedesio.

§ Sigebertus in Acta Sancti Guiberti, cap. 6.

Pliny the elder, who was nearly cotemporary with our Saviour, seems entirely ignorant of any stronger liquor than that produced by fermentation. He mentions a variety of drinks used in Egypt, and also in France and Spain, which were made from grain steeped in water, and were distinguished by the names zythum, cœlia, ceria, ceris vinum, curmis cervisia, &c., which seem to be equivalent to our ale or beer.* No little discussion has arisen as to his precise meaning, when after enumerating these beverages he says, 'Heu, mira vitiorum solertia! inventum, est quemadmodum aqua quoque inebriaret'—'Alas, the surprising skill of vice! it was discovered that water also might be made to intoxicate.'† Some authors assert that Pliny here obviously refers to a liquor obtained by distillation,‡ and the passage unconnected with what precedes it, would certainly seem to justify such an inference; but when considered in connexion with the context, it evidently refers to the intoxicating quality acquired by the water during the fermenting process. He also speaks of a mode of obtaining artificial quicksilver by distillation. The apparatus employed consisted of two earthen pots, and an iron pan, but he does not mention its application to the extraction of the juices of vegetable matter, if we

* Plin. b. xiv. chap. 22.

† Plin. b. xiv. sec. 29.

‡ This idea is adopted by Murphy in his translation of Tacitus.—'Pliny the elder,' says he, 'observes that the Egyptians had their intoxicating liquors distilled from grain, which they produced in great abundance.—De Moribus German. v. iv. p. 26.

except his account of the manner in which oil was obtained from pitch in book xv., ch. 7—the vapor arising from the boiling pitch was collected on fleeces of wool spread over the pots, and afterwards extracted from them by expression.' As no other mode of distillation is mentioned by Pliny, we can reasonably infer that this imperfect process was all that was known of the art in his day.

Although the Arabian word alembic, which means a vessel for distillation, is derived from the Greek (ἀμβιξ), yet it does not follow that this latter people made the same use of it as the Arabians did.* And indeed it seems probable that they hardly knew as much about distillation as the Romans; for Dioscorides, who was cotemporary with Pliny, and physician to Cleopatra, collected essential oil on the fleeces of a sheep, which seems a conclusive proof that he knew of no other mode of distilling.

One hundred and thirty years subsequent to this lived the celebrated Galen of Pergamus, who wrote many works on medical and philosophical subjects. He speaks of distillation *per descensum*, but it is generally supposed that he meant nothing more by this than what regarded the melting of metals. It is thought by some that St. Paul in Romans xii. 20. alluded metaphorically to this practice, which is thus expressed by the poet,—

'So artists melt the sullen ore of lead
By heaping coals of fire upon its head—
In the kind warmth the metals learn to glow,
And pure from dross the silver runs below.'

* Le Clerc's Histoire de Medecine, p. 641.

In the same way Caligula, according to Pliny,* endeavored to collect gold from orpiment, a mineral substance found in various parts of the world.

In the reign of Dioclesian who succeeded Numerian in the year 287, according to some authors, the Egyptians had carried their speculations in chemistry so far as to induce that emperor to publish an edict for the suppression of all the ancient books that treated of the art of making gold and silver, fearing lest the power and wealth of the Egyptians should excite them to rebel against his authority.† This account however is rejected by De Pauw, and some other authors, as entirely fabulous.

But still it would appear from a commentary on the second book of Aristotle's Meteors, written by Olympiodorus, a peripatetic philosopher who flourished under the second Thodosius in the earlier part of the fifth century, that distillation was not then known in a state at all more advanced than it was 400 years before: for he says, that 'sailors, when they labor under a scarcity of fresh water at sea, boil the sea-water, and suspend large sponges from the mouth of a brazen vessel to imbibe what is evaporated, and in drawing this off from the sponges they find it to be sweet water.'‡ This, although a probable, is not a positive proof that a more perfect process of distillation was not known at that time.

Olaus Borrichius, the learned Danish professor, has exhibited in his 'Hermetis et Egyptiorum Sa-

* Plin. b. 33. c. 4.
† Le Clerc Histoir. de Med., p. 770.
‡ Morewood, p. 25.

pientia,' some figures of a distilling apparatus, which are said to be contained in the works of Zosimus the Panoplite, who lived at the close of the fourth century or the beginning of the fifth. According to some authors, this Zosimus was the first who used the word 'Chemia,' which in the Arabic signifies concealment, and from which Bœrhaave and others have derived the word chemistry.* Le Clerc however quotes a remark of Joseph Scaliger, in which he says Julius Firmicus Maternus, who lived at the beginning of the fourth century, is the most ancient of all authors now extant, who have used the word alchemy or chemistry.†

While chemistry however was making slow but gradual and regular advances toward a higher degree of usefulness, an event occurred which did more to retard the progress of letters than almost any other recorded in history. During the sixth century the Saracens, at that time a rude and barbarous race, besieged and captured Alexandria, and with reckless ferocity committed to the flames the splendid and extensive library which it had been the pride and glory of the Ptolemies to collect. Thus were destroyed more than 700,000 volumes, comprising the most valuable works of

* Histoir. de Medecin., p. 770.

† Some authors say that the word chemistry is of Egyptian origin, as that nation was the first who cultivated the science. Those who maintain this opinion, as Olaus Borrichius, found it upon the fact that there are now various papers of Hermes on chemistry to be found in some of the European Cabinets. They derive the term from Cham, the name which the ancient Egyptians gave to Egypt in their own language.

which the world could then boast. But this ingenious and enterprising people soon made amends for the devastation they had committed: for, as their conquests made them more extensively acquainted with other nations, they acquire a taste for literature and science, and become inventors and cultivators of a new art which was destined in after ages to confer innumerable benefits on the world, and to illustrate with new force and power the intellectual greatness of the human mind. Alchemy and medicine became the favorite pursuits of this hitherto barbarous people. Their works on these subjects are very numerous, and they did more than all the Grecian writers to increase the powers of the medical art, and extend the boundaries of science.

Many of the Caliphs themselves made great progress in the learning of the day. Almamur, in particular, who ascended the Moslem throne in the 198th year of the Hegira (813th of the Christian era), was much distinguished for his proficiency in various branches of science. He devoted large sums of money to the purchase of books from every quarter, and employed the most learned men to translate them; and encouraged by his own patronage and example the study of science and literature to the greatest possible extent. Among the earliest of their eminent physicians, whose names have descended to us, are Isac Israelite, adopted son of Salomon, king of Arabia, Serapion, and Avenzoar. The first of these, according to the calculation of Rene Moreau,*

* De missione sanguinis in pleuritide.

flourished in the seventh century, and the second about the year 762. To these followed Geber, an Arabian prince, who was eminently proficient in the knowledge of alchemy, and lived according to the generally received opinion in the seventh century.* His works contain some interesting directions as to the mode of conducting distillations; and in one of his works he has given much curious matter relative to the nature and formation of aqua fortis, as well as of acids and salts in general. And this renders more probable the story that is told of Almokanna the veiled prophet, that when in danger of being taken by the troops under the command of Almohdis' general, in the year 780, to avoid falling into the hands of his enemies, he threw himself into a vessel of aqua fortis, a preparation which could not be obtained but by distillation. In Morewood's essay is contained a translation of the twelfth chapter of the second book of Geber's 'Liber Investigation is Magisterii.'

'Distillation,' says he, 'is the raising of aquesus vapor in any vessel in which it is placed. There are various modes of distillation. Some-

* Much discussion has taken place as to the age in which Geber flourished. Some authors contending that he lived in the seventh century—others in the eighth, and others making him as late as the ninth. But the weight of authority seems to be in favor of the opinion stated in the text. Geber signifies king, which perhaps accounts for his being called king of India; and in another place king of Arabia. Some say he was nephew to Mahomet. His works are written in Arabic, and were presented in manuscript by Golius to the University of Leyden.

times it is performed by means of fire, sometimes without it. By means of fire the vapor either ascends into a vessel, or descends: such as when oil is extracted from vegetables. The object of distillation is to free liquors from drugs, and to preserve them fresh: since every thing distilled possesses greater purity, and is less liable to putrescency. The object of distillation by a still is to get water free from earthy substances, by which both medicines and spirits are injured. The motive for distilling by a filtre is to obtain pure water. There are two modes of distilling by fire: the one is performed in an earthen vessel full of coals or embers: the other with water in a vessel, with herbs on wool, arranged in order lest the cucurbit or still be burst before it is completed. The first is conducted by a strong, the latter by a gentle, and equal fire. Thus it happens that the heavy and grosser parts are raised by the first means, whilst by the latter we obtain a more subtile spirit, approaching nearly to the nature of common water. It is well known that when we distil oil by embers, we obtain oil without any alteration: but when we distil oil by means of water, we obtain fair and clear oil from what appeared excessively red at first. By means of water then we must proceed with every vegetable and thing of the same nature to ascertain the elementary parts. By the descensive mode must we proceed with every kind of oil. The arrangement of that which is performed by embers is this: take a strong earthen pot and fit it to a furnace of the same shape as that which is used for sublimation;

around its bottom let sifted embers be placed, and covered with them up to the neck: then put in the substance to be distilled: finally let the cucurbit, or receiving vessel, be attached and luted to the neck of the still, that nothing may escape. Let the still and receiver be of glass, and increase the fire as circumstances may require, until the whole is distilled. The second mode is like the first both in vessel and still, but different in requiring a brazen or an iron pot fitted to the furnace as the former, and then upon the bottom of the pot must be placed two or three inches of herbs or wool to prevent the receiver from being broken, and let the receiver be covered with the same herbs in something similar up to the neck of the still, and upon these herbs let flexible twigs be strewed, and on them let heavy stones be placed that may compress the still, receiver, and herbs, to prevent the contents from rising, which would break the vessel, and destroy the distillation. Fill the pot with water, and apply the fire until the operation is completed. The arrangement of that which is performed by descent is this: take a glass vessel having a proper descent, with a lid which must be luted, to the descending vessel: put in what is to be distilled, and place the fire upon the lid. The arrangement of that which is performed by filtre is this: place what is to be distilled in a hollow stone, and let the broad part of the filtre be well washed, and water be placed in the hollow part: let the slender part project over the edge of the stone, under which let a vessel be placed to receive the filtered substance. If not pure at first, put it back until sufficiently pure. N. B. At first

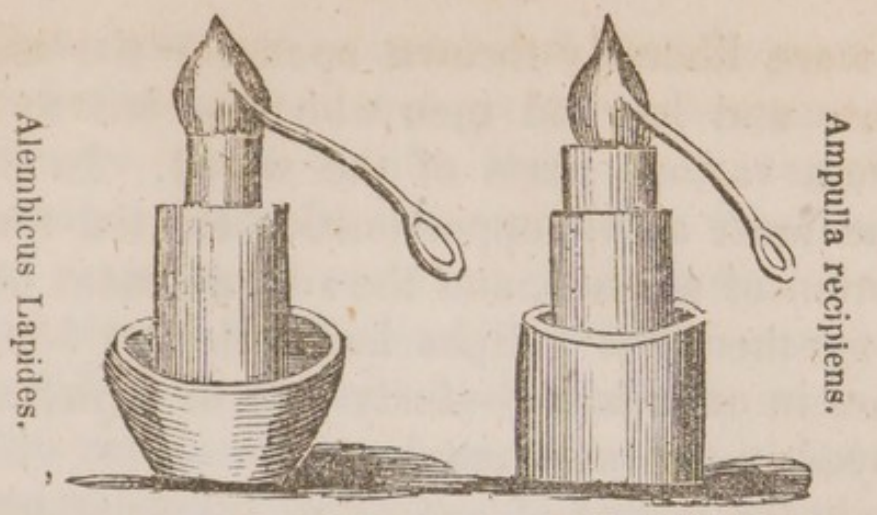
it will send over only the water with which it was moistened—then the liquor to be distilled.'*

It is obvious from this extract, and from other remains of the writings of Geber, that the process of distillation had attained no inconsiderable degree of perfection even at that early period, and that the mode of conducting pharmaceutical preparations was also much advanced. We may also infer that distillation must have been known before the time of Geber, as he does not speak of the *invention* of any process, but merely describes the mode then in use.

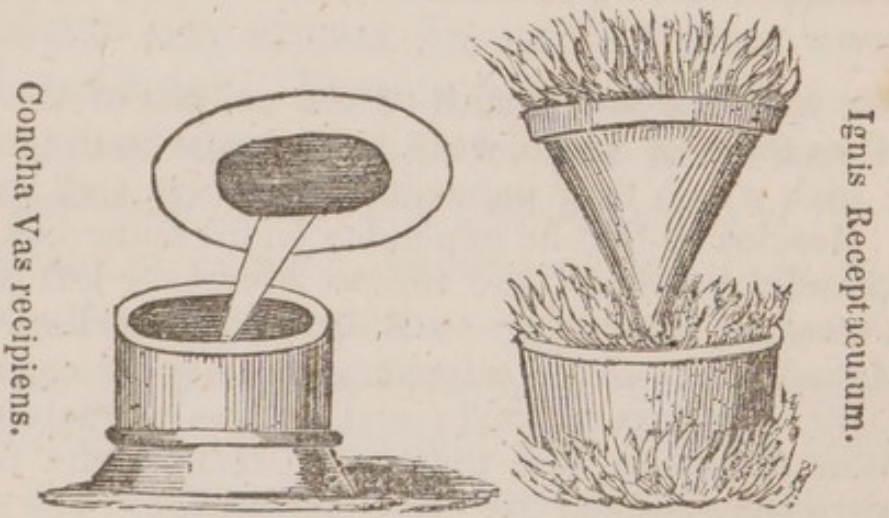
At the period in which he flourished, a love of science and literature had been extensively diffused, and continued to keep pace with the conquests of the caliphs, whose empire now extended from the gulf of Persia and the borders of Tartary to the mediterranean and Indian seas, and from the isthmus of Suez to the Atlantic Ocean.

The collection of books and curiosities at Bagdad alone was such as would do honor to the proudest and most literary capitol of modern Europe, even in the present age of scientific taste and research. The fondness for extensive libraries was carried to such a pitch, that we read of a physician who declined the invitation of the Sultan of Bochara to reside at his court because the carriage of his books alone would require four hundred camels. Cairo in Egypt contained a library of 100,000 volumes handsomely copied and bound; and these rich and abundant treasures of know-

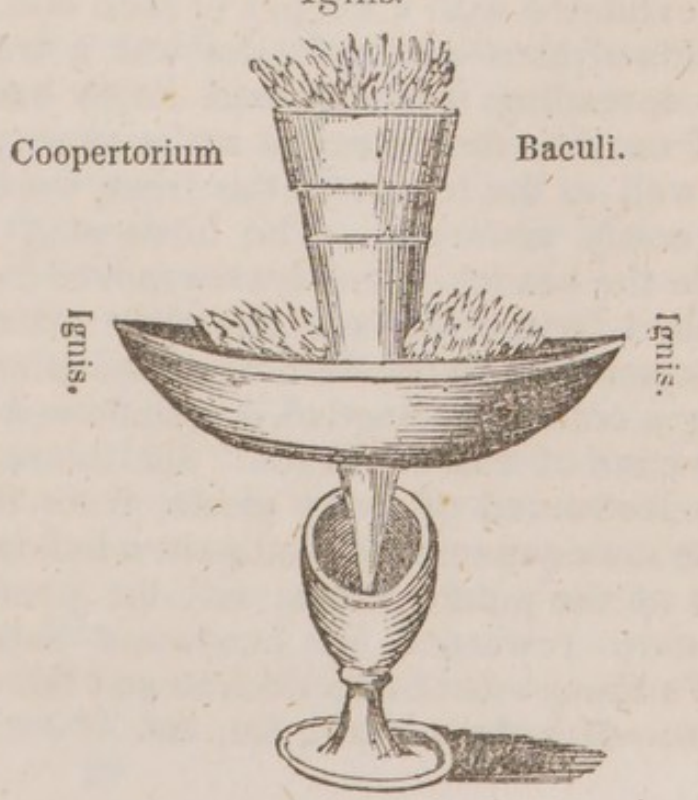
* The figures in the print will give a good idea of part of the apparatus employed by Geber.



Primus Distill. Modus. Secundus Distill. Modus.



Tertius Distill. Modus. Quartus Distill. Modus.



ledge were liberally thrown open for the use of students and learned men who resorted to that city from various parts of the world. In Spain too, the most ample opportunities existed for the promotion of science, and the advancement of the arts; for there the caliphs had collected 600,000 volumes in one library—forty-four of which were employed in the mere catalogue.*

While the means of acquiring information and knowledge were so abundant, and so accessible by

* The splendor and wealth of the caliphs of the East, as well as those of Spain, were quite equal to the munificence with which they patronised literature and learned men. Besides all that he expended on his numerous wars, and splendid buildings, the Sultan Almanzor left behind him a treasure amounting to £30,000,000 sterling. His son Mahadi, in a single pilgrimage to Mecca, expended 6,000,000 of dinars of gold; and at the nuptials of his grandson Almamon, one thousand pearls of the largest size were showered on the head of the bride. His palace was adorned with 38,000 pieces of tapestry, 12,500 of which were of silk, embroidered with gold. A hundred lions were exhibited with a keeper to each lion. Among other objects of show and splendor was a tree of gold and silver spreading into eighteen large branches, on which and on the small boughs sat a variety of birds which, as well as the leaves of the trees, were made of the same costly materials. The birds sang melodious notes, while the branches and leaves moved in harmony, as if impelled by the winds of heaven. The vizier of a Sultan expended two hundred thousand pieces of gold in founding a college at Bagdad, and endowed it with an annual revenue of 15,000 dinars. Six thousand pupils were here instructed of every grade, from the highest noble to the lowest mechanic: indigent scholars were supported out of the public funds; and the professors and teachers were rewarded by handsome salaries.—See Morewood's Essay—Gibbon's decline and fall of the Roman Empire—Murphy's Spain, &c. &c.

all, we need not be surprised that important discoveries in science, and great improvements in the arts were made by the Saracens. And in fact we cannot doubt for a moment that this people, in some respects at least, excelled all who had preceded them: and although we have to regret that so much of their skill and ingenuity was wasted in the vain and frivolous pursuits of alchemy—in endeavoring to find the philosopher's stone, and to discover an elixir of life, yet the science of chemistry may almost be said to have owed its origin to them. They in all probability invented and named the alembic for the purposes of distillation—they analyzed the subtances of the three kingdoms of nature: discovered the three mineral acids—distinguished the vegetable and mineral alkalies from each other—and though perhaps a knowledge of gunpowder* was derived from the East, yet they greatly improved its mode of preparation, and found out new ways of employing

* It is a singular fact that the two agents (alcohol and gunpowder) which have perhaps proved more destructive of human life than any others should, with respect to the period of their origin, be involved in the same mysterious darkness, and yet should, so far at least as we can ascertain, have been invented about the same time. Gunpowder seems to have become known first in Europe in the thirteenth century. Albertus Magnus, and Roger Bacon, who died in 1278, are the first who mention it. Beckman (vol. 4, p. 525) in his learned and interesting work, thinks it probable that it was invented in India, and brought by the Saracens to Europe; while other authors contend that it was invented by the Chinese, and that its use among that ancient and singular people was cœval with their most ancient historic records.—Du Halde, Barrow, Morewood, &c.

it in war. It is also certain that the Arabian physicians introduced many new medicines into practice, such as (among others) manna, senna, rheubarb, cassia, &c. They also used sugar more extensively than had hitherto been done—honey having been employed by their predecessors instead of it. It is said to have been known to the Greeks, but, according to Le Clerc, it was of a different kind from that now in use. The discovery of sugar enabled the Arabians to make use of many preparations unknown to the Greeks, as syrups, julaps, &c.

According to Sorsannus, the disciple and biographer of Avicenna, the latter, who was born at Assera near Bochara A. D. 980, and who wrote a work on alchemy, makes no mention of any chemical medicines in any of his works which have descended to us except rose water; and it is probable that this article was obtained by distillation, because Mesue mentions the same thing, and expressly distinguishes that which was made by distillation, from that which was obtained by simple infusion of roses in common water. The author of the book entitled 'Liber Servitoris' is not content with mentioning rose water, but also teaches the manner of making it, and describes the furnaces and vessels employed in its distillation. He adds that the manner of making this water was extensively known in his time. 'Aqua rosarum operatio scita est apud multas gentes.'

As no mention of any chemical medicine occurs in the writings of preceding physicians, and as these, viz., Avicenna and Mesue are the first who have spoken of any medicines of this kind, it

seems proper to fix upon the age of Avicenna* as the earliest period at which this class of remedies was introduced into medical use. It is possible, to be sure, that these remedies, some of them at least, had been discovered before this time by alchemists, and perhaps been used by a small number of curious physicians who had profited by their labor. But as we can find no trace or vestige of them in the works of Galen, who lived in the second century, nor in those of Aetius, Oribasus, or other Greek physicians who lived in the fourth century, although they have described a great variety of medicaments; nor in the writings of the first Arabian physicians, which were composed in the seventh century, we may safely infer that chemical preparations prepared by distillation were not then known, or used; and of course alcohol† among the number.

Although the discovery of alcohol has been almost universally ascribed to European alchemists of the middle ages, there are not wanting respectable authorities‡ who contend that it was first employed in China; and they even assert that this beverage was known among the Chinese far beyond the date of their most authentic records, or

* Who was born as already mentioned in the tenth century.

† The intelligent reader will not of course confound the invention of the process of distillation with the discovery of alcohol, or ardent spirit. The former, as we have already seen, was practiced in an imperfect manner as early as the seventh century; while the latter did not become known till long afterwards.

‡ Morewood, Du Halde, Le Compte, Osbeck, Grosier, &c. &c.

at least long before its introduction into any other part of the world. It seems that their philosophers were engaged in the pursuit of the elixir of life a great while before this fancy engaged the attention of their brethren in Europe, since some of their empirics have from an early age boasted of a specific which could confer immortality on all who partook of its virtues. It is said that the pursuit of this chimera* commenced with the disciples of the philosopher Lao-Kium, about 600 years before the Christian era. And these authors, who contend for the antiquity of civilization and science among the Chinese, assert farther that their knowledge of distillation should be referred to a period as remote as this, which is greatly anterior to the time of its introduction into other parts of the world. But however this may be, they say it is certain that the process of distillation has been known there for so long a time, that the precise period of its introduction is

* Hyen-Tsong, in the year of the Christian era 820, procured some of this liquor, with which it is thought his eunuchs had mixed poison, as he died immediately after drinking it, at the age of forty-three. Sween-Tsong it appears had no sooner taken it in the year 859, than he became a prey to worms which swarmed in his body, and killed him in a few days, at the age of fifty. Shi-Tsong or Ky-a-Tsing, also died of this liquor in 1556, at the age of fifty-eight. It is said of the emperor Vu-Ti, who reigned in China in the year 177 before Christ, that when about to put one of his ministers to death for drinking a cup of this liquor, which had been prepared for himself, he was convinced of his weakness and folly by the following wise and sensible remonstrance of his minister. 'If this drink, sir, hath made me immortal, how can you put me to death? But if you can, how does such a frivolous theft deserve it?'—Morewood, and Du Halde.

lost in the lapse of ages, and that owing to the little intercourse which the Chinese have with the rest of the world, and the care and jealousy with which they exclude strangers from among them, it is very possible that this art may have existed for ages in that country without becoming known to Europeans. We must confess however that these accounts are so intermingled with fable* that very little dependance can be placed on their accuracy, and the utmost circumspection is necessary in receiving them. It would seem that the Jesuit missionaries, and the earlier travelers in China, were either completely deceived by the national spirit of vanity and exaggeration so remarkable in that people, or else they were willing coadjutors in purposes of deception for the

* The following circumstances are gravely detailed by Du Halde, and as gravely repeated by Morewood, as authentic history. Under the government of the emperor Yu or Ta Yu, 2207 years before Christ, the making of ale or wine from rice was invented by an agriculturist by the name of I-tye (who is sagely conjectured to be one of the immediate descendants of Noah), and that as the use of this liquor was likely to be attended with evil consequences, the emperor expressly forbade the manufacture or drinking of it under the severest penalties. He even renounced it himself, and dismissed his cup-bearer, lest, as he said, the princes, his successors, might suffer themselves to be enervated by so delicious a beverage. This however had not the desired effect, for the people having once tasted it could never afterwards entirely abstain from the bewitching draught. It was even at a very early period carried to such excess, and consumed in such abundance, that the emperor Ky-a, the Nero of China in the year 1836 before Christ, ordered 3000 of his subjects to jump into a large lake which he had prepared, and filled with it.

sake of creating an interest in their narrations at home. And it is very certain that the extravagant notions formerly propagated respecting the great antiquity, the wonderful mechanical skill, and the profound scientific acquirements of the Chinese are not at all confirmed by modern, and more authentic observations. The medical skill, in particular of the Chinese, which has been so much celebrated by the Jesuits, makes a very contemptible figure in the descriptions of more recent travelers; and indeed seems to be elevated but a shade above the empirical practice of the Aboriginese of our own country. Abel* says that they are entirely ignorant of anatomy, and that one of their most intelligent surgeons remarked to Mr Manning that anatomical plates would be the most valuable present which could be made to his countrymen. They had heard of the heart, lungs, &c., but placed them all on the wrong side of the body. Dobel remarks that they had no correct idea of the circulation of the blood: they think it flows differently on different sides of the body; 'hence,' said one of their most learned doctors, 'a Chinese physician feels the pulse in both arms.'† On the whole then it would appear that vague and uncertain, and unsatisfactory as are the fragments which have been collected respecting the progress of the

* Embassy to China.

† The following is a specimen of the Chinese skill in medicine. 'The cheval de mer,' a creature like a seahorse, and about six inches long, is very useful, as it will enable a woman whose life is threatened 'accoucher sans effort.' 'Il suffit de le mettre dans la main de la femme, et elle se de livrera de son fruit, avec la meme facilite qu'une brebis, dont le terme est arrivee.'

art of distillation in Europe during the dark ages; at least as much dependance can be placed upon them as upon those which can be gathered from the East.

Inasmuch as the writings of Avicenna, or at least a considerable number of them, have descended to us, and as they contain no notice of alcohol or spirit of wine, we have good reason to believe it was unknown in his day, especially as we cannot suppose so important an article would have been overlooked by so accurate an observer and so good a chemist. It would seem that the period of the discovery of alcohol is nowhere mentioned in any works now extant; and we can therefore only make an approximation to this period by placing it between the time of Avicenna (who was born A. D. 980), that of Thaddeus the Florentine (born A. D. 1190), who is the first author who speaks of the spirit of wine.

Arnoldus de Villa Nova, a Frenchman, or according to some authors a Spaniard, who flourished a few years later than the preceding authors, is the first who recommends the spirit of wine, impregnated with certain herbs, as a valuable remedy. He speaks at length of its virtues. He says some call it the 'water of life,' 'the water which confers immortality,' 'the water of gold.' 'It is with reason,' he remarks 'that they call it the water of life, for it strengthens the limbs and whole body, and prolongs life.'

He mentions also the diseases for which it is the proper remedy, either alone or when charged with the virtues of herbs, which were frequently added to it, as rosemary, sage, &c. &c. 'The

water of life,' he remarks, 'on account of its simplicity, readily receives the impressions of all odors, savors, and qualities.'

It seems singular that the discovery of alcohol should be attributed to Arnold as has frequently been done,* since we cannot doubt that, if this had been the case, frequent reference would have been made to so interesting and important a fact in his writings, and in those of his disciple Raymond Lully. The absence of all such reference therefore seems conclusive proof that the discovery was not made by him, but must be ascribed to an earlier period.

From a consideration therefore of the whole ground, we are led irresistibly to the conclusion that the discovery of alcohol must have taken place between the age of Avicenna (A. D. 980), who does not mention it, and that of Thaddeus the Florentine (A. D. 1190), who does speak of it; and as it seems pretty well known in Arnold's time, it was no doubt brought into use sometime previous, probably as early† as 1050, or 1100

* Hall's distiller, &c. &c.

† I am aware that this is 150 or 200 years anterior to the time at which this discovery is commonly supposed to have occurred; but I think any one who will candidly examine the point for himself will arrive at the above conclusion.

CHAPTER II.

Introduction into Medical Practice.

THERE is little reason to doubt, both from the nature of the article, and the extravagant commendations bestowed on its qualities, that alcohol was used extensively as a remedial agent soon after its discovery. When physicians and others thought so highly of a medicine as to call it 'the water of life,' 'the water which confers immortality,' &c. &c., we cannot suppose for a moment that they would suffer it to lie idle, but on the contrary that it would be introduced in numberless instances to cure diseases, as well as to preserve beauty and prolong life.

We have now perhaps no means of ascertaining at what period alcohol began to be extensively manufactured, but in all probability like other inventions it gradually extended from small beginnings, and moderate quantities, until in the sixteenth and seventeenth centuries* it had spread over the greater part of Europe. It was at first manufactured exclusively from spoiled wine, afterwards from the dregs of beer, wine, &c., and then from wheat, rye, barley, &c.

Alexander Tassoni relates that the Modonese were the first in Europe who in consequence of

* From a passage in the Testamentum Novissimum of Raymond Lully, who was a disciple of Arnold, and born at Majorca in 1234, we may infer that brandy was well known, even at that early period.

a superabundant vintage, made considerable quantities of it. It was first extensively used among the German miners as an ordinary drink, and hence the demand for it soon became so great that the Venetians were induced to share with the Modonese the lucrative commerce to which it gave rise.

It would appear however that brandy did not come into general use until the end of the fifteenth century. In the reformation of the archbishopric of Cologne, early in the sixteenth century, brandy is not mentioned among the articles which the people were prohibited from using, as it probably would have been had any serious abuses existed from its consumption.

William II, Landgrave of Hesse, about the beginning of the sixteenth century, ordered that no vender of brandy suffer it to be drunk in his house, and that no one should offer it for sale before the church doors on holidays. In 1524 Philip, Landgrave of Hesse, totally prohibited the sale of burnt wine or brandy.

In 1595, in the electorate of Saxony, burnt wine was expressly forbidden to be made except from wine-lees, and the dregs of beer, because it was thought an unpardonable use of grain to appropriate it for this purpose.

In 1582 brandy was prohibited at Frankfort on the Maine, because the surgeon-barbers asserted that it was injurious in the prevailing disorders. From the same cause the prohibition was renewed in 1605.

It appears from various passages in authors of the latter part of the sixteenth, and during the

seventeenth centuries, that the intemperate use of alcoholic stimulants had at that early period made dreadful havoc of the health, and lives, and morals of the human race; and that then, as now, the warning voice of the philosopher, the divine, and the patriot, was raised against this destructive vice, and its dreadful consequences.

A forcible writer, in a volume published in London in 1582,* remarks, 'that the Russians, Swedes, and Danes have so naturalized brandy, aqua vitæ, beer, rum, &c., that they usually drink our Englishmen to death, so that the most ingenious author of the Vinetum Britannicum concludes that temperance (relatively speaking) is the cardinal virtue of the English.' And in another passage—'How many instances have we had yearly of men's dying suddenly from drinking of brandy? In short, brandy burns the hearts of his majesty's subjects out; in a few years it hath been the destruction of some thousands.'†

As remarked above, we know that spirit of wine was used for sometime after its discovery as a medical agent; although we have no means of ascertaining with precision the particular diseases it was supposed to cure, or the peculiar states of the system to which it was thought best adapted.

It was likewise introduced and used in the composition of medicines not long after its discovery. Hall‡ asserts, though upon what authority

* Quoted in the Harleian miscellany, vol. 12, p. 38.

† It is stated, that at this time in England brandy sold at two-pence, or at most at three-pence a quartern, and rum at sixpence a quart.

‡ Hall's distiller, preface.

he does not inform us, that it was first used for this purpose by the Arabian physicians so late as 1333. But Hall is undoubtedly mistaken in this matter, for Zapata, an Italian physician, who wrote in the sixteenth century, says that the method of making spirit of rosemary (in which aqua vitæ is used) was known to Arnold de Villa Nova, who, as we have already seen, died in 1310. In an edition of his works with this titlepage—'Joh. Bapt. Zapatæ, medici Romani, Mirabilia seu secreta medico-chirurgica—per Daviden Spleissium, ulmiæ 1696—is the following passage, p. 49: 'Ab Arnoldo de villa Nova, vinum rorismarini magnis laudibus celebatum componebatur, qui ut encomii cumulum ei adderet, de Anaxagora memorat, quod in Babylone degens, ex medico quodam Saraceno satis de crepito, virtutem rorismarini summis precibus percontatus, ab ipso id responsi tulerit: se nec cuiquam secretum sibi suspiciendum revelatuum,' &c.

The process as employed by Arnold is very imperfect, but still serves to show that spirit of wine was employed in the composition of medicines as early at least as 1275. A more scientific mode of manufacturing spirit of rosemary, or Hungary water, is detailed by John Prevost in a work published by his sons in 1659,* from which it appears that this more perfect process was employed by Elizabeth, Queen of Hungary (whence the name

* With the following title—Selectiora remedia multiplici usu comprobata, quæ inter secreta medica jure recenseat. Auctore Johanne Prævotio, Rauraco, in Patav. gymnasio olim medicinæ professore et horti medici præfecto. Libellus posthumus a Johan. Bapt. et Theob. auctoris fil. in lucem editus—12mo.

of Hungary water), who died in 1380, or 1381. It may not be uninteresting to insert the account which, although mingled somewhat with fable, according to the custom of the age, is still supposed to be substantially true. In page sixth the following passage occurs: 'For the gout in the hands and feet.' 'As the wonderful virtue of the remedy given below has been confirmed to me by the cases of many, I shall relate by what good fortune I happened to meet with it. In the year 1606 I saw among the books of Francis Podocather, of a noble Cyprian family, with whom I was extremely intimate, a very old breviary, which he held in very high veneration, because he said it had been presented by St. Elizabeth, Queen of Hungary, to some of his ancestors as a testimony of the friendship which subsisted between them. In the beginning of this book he showed me a remedy for the gout, written by the Queen's own hand in the following words, which I copied:—

'I, Elizabeth, Queen of Hungary, being very infirm, and much troubled with the gout, in the seventy-second year of my age, used for a year this receipt given me by an ancient hermit whom I never saw before nor since: and was not only cured, but recovered my strength, and appeared to all so remarkably beautiful, that the King of Poland asked me in marriage, he being a widower, and I a widow. I however refused him for the love of my Lord Jesus Christ, from one of whose angels I believe I received the remedy.'

The receipt is as follows:—

Take of aqua vitæ four times distilled, 3 parts,
Tops and flowers of rosemary, 2 parts,

put them together in a close vessel, let them stand in a gentle heat fifty hours, and then distil them. Take one dram of this in the morning once every week, either in your food or drink, and let your face and the diseased limb be washed with it every morning.

It renovates the strength, brightens the spirits, purifies the marrow and nerves, and preserves the sight, and prolongs life.'*

According to Campion,† aqua vitæ was very early introduced into Ireland, and used there in immense quantities as it has been ever since. He says (p. 13) that in his time, 'on account of the marshy and watery state of Ireland, the inhabitants, but particularly new comers, were very subject to rheums, distillations, and fluxes, for remedy whereof they used ordinary drink of aqua vitæ (usquebagh), so qualified in the making, that it dryeth more and inflameth less than other hot confections.' It is also remarked by the same author, that 'in haste they squeeze out the blood of raw flesh, and ask no more dressing thereto, the rest boileth in their stomachs with aqua vitæ, which they swill after such a surfeit by quarts and pottles.' Speaking of a famine that occurred in 1316, he observed 'that it was caused by the soldiers eating flesh and drinking aqua vitæ in Lent; and in another place he says, that a knight named Savage, who lived in 1350, while leading an army against the Irish, gave every soldier before he

* For most of the above particulars I am indebted to the history of inventions by the ingenious and learned Beckman.

† Campion's History of Ireland.

engaged with the enemy, a mighty draught of aqua vitæ.'*

Ledwich remarks, that for some time aqua vitæ was used only as a medicine: and its operation in preserving health, dissipating humors, strengthening the heart, curing the colic, dropsy, palsy, quartan fever, stone, and prolonging life, was firmly believed on the faith of physicians, and made it eagerly sought for. At what period, continues this author, it reached Ireland is not ascertained. It was called aqua vitæ very early in England. In Ireland it was at one period as well known by the name of buil-ceann as usquebagh.† The former application was very expressive—buil signifying madness, and ceann the head, indicating its infuriating effects.

In 1556 an act of Parliament was passed at Drogheda against distilling aqua vitæ, 'a drink nothing profitable to be daily drunken and used, now universally made throughout this realm, especially in the borders of the Irishry, whereby much corn, grain, and other things are consumed,' &c. &c. The act forbids the manufacture of it without the Lord Deputy's license, under the great seal, on pain of imprisonment, and fine of four pounds. But gentlemen of ten pounds per annum in lands for life, or inheritance, and freemen of towns' corporate, had liberty to make aqua vitæ.

In the reign of Queen Elizabeth aqua vitæ was a considerable article of trade, but notwithstand-

* See also Morewood's essay.

† Our word whiskey is said to be derived from this latter name.

ing its great abundance, the wealthy and luxurious indulged extensively in the use of expensive wines. Hollinshead in his chronicle relates that the great Shane O'Neil, who was so bitter an opponent to Queen Elizabeth, usually had in his cellar at Dundrun 200 tons of wine, of which as well as of usquebagh he drank copiously, and to such excess that his attendants were often obliged to bury him in the earth chin-deep until the heating effects of intoxication had subsided.

From the earliest period, with the exception already mentioned, no restriction had been laid on the distillation of spirits until the year 1661, when a duty of fourpence per gallon was levied upon all the aqua vitæ in the kingdom.

Alcohol, as already mentioned, seems to have been held in much higher estimation as a remedial agent shortly after its discovery than at any subsequent period. It seems at first to have been prescribed and used as a sort of universal panacea, and to have been confided in as a medicine, which was to expel disease and misery, if not death, from our world. Bitter experience however soon convinced mankind that its virtues had been greatly overrated; and in a short time it sunk down to the subordinate rank which it now occupies among the articles of the materia medica. We accordingly find it but seldom mentioned by authors who flourished later than the fifteenth century, and when referred to at all, it is merely as aiding in the preparation of other medicines.

Riverius, who lived about the year 1600, speaks of it occasionally as employed in the administration and preparation of other remedies. The

following is a specimen of his prescriptions:—'Claret water,' says he, 'is made thus.'—Take of cinnamon grossly powdered two ounces: steep them in one pint of aqua vitæ in a glass: in another glass put six ounces of sugar with half an ounce of rose water.'

In page 256 he remarks:

'Moreover wine plentifully taken assuageth hunger according to Hippocrates, and especially the spirit of wine or aqua vitæ.'

Thos. Willis in his 'Diatriba de medicamentorum operationibus in humano corpore,' published in 1675, in speaking of the causes of pleurisy, says, 'Huc spectant caloris et frigoris excessus, pororum constipatio subita, crapula, vini aut liquorum ardentium potus.'

He also mentions the 'potus aquarum ardentium,' as among the causes of jaundice.

CHAPTER III.

General Observations.

HABITS of intemperance have no doubt been more or less prevalent from the earliest ages of the world. The first instance of intoxication of which we have any record is that of Noah; and from the time of this ancient patriarch to the present day, a thirst for intoxicating liquors has pervaded every nation, and has been the fruitful source of poverty, wretchedness, and crime.

Various inebriating drinks besides wine were known and used long before the invention of the process of distillation. The ancient Egyptians, according to Herodotus, made great use of beer extracted from barley: and in the time of Cambyses, 529 years before the Christian era, the Syrians were skilled in the manufacture of palm wine. And Xenophon, in his history of the celebrated retreat of the 10,000, remarks that the people in that part of Armenia called Curdistan, had a mode of preparing a powerful liquor from what appeared to be barley. Morewood observes that this is probably the same liquor as that called Zythem, made in some of the provinces of Asia Minor, mentioned by Diodorus Siculus more than 300 years afterwards.

Tacitus speaks of ale or beer as a common drink among the Germans of his time. The liquor called arrack, which possesses a powerfully

intoxicating quality, is supposed to have been used in the island of Java as well as in Hindostan from time immemorial. Ale was a favorite beverage with the old Saxons; and so great was their attachment to its use that they made the glory and felicity of valhalla (their paradise) to consist in drinking it from the skulls of their enemies slain in battle.

But the ancients were not only acquainted with a variety of intoxicating beverages, they also employed them to as great an extent perhaps as the more modern nations, at least such seems to have been the fact among the Romans just before and after the decline and fall of the republic. Some remarkable instances are related by Pliny of immense quantities of wine swallowed by the drunkards of his day. Norvellius Torquatus was knighted by Tiberius Claudius with the title of Tricongius, or the three-gallon knight, because he could drink three gallons of wine at a draught.* It is said of Caius Piso during the reign of Tiberius, that he would sit for two days and nights drinking almost without intermission. And we also read that the Emperor Maximilian performed still greater feats in this way, for he could carry six gallons without being guilty of a debauch.† A son of the celebrated orator Cicero, from whom better things might have been expected, was surnamed Bicongius, because he was accustomed to

* Pliny, b. xiv., chap. 22.

† Sinclair in his code of health says, that a Mr. Vanhorn of more modern times drank, in the course of twenty-three years, 35,688 bottles, or 59 pipes of red port; a feat equal perhaps to any of his predecessors.

drink two congii or eight bottles at a sitting; and even the elder Cato allowed his slaves during the saturnalia four bottles of wine per diem. Their poets too seem to have been seized with the mania for drinking. Martial thus speaks of the cup—'Regnat nocte calix, volvuntur biblia mane, cum Phœbo, Bacchus dividit imperium.'

'All night I drink, and study hard all day;
Bacchus and Phœbus hold divided sway.'

The ancients had the same fancy for keeping wines to a great age, which so much distinguishes our modern wine-bibbers. In Pliny's time there were some wines which were 200 years old, and which from their great excellence could not be purchased with money.* If a small quantity of this wine were mixed with others more recent, it is said they communicated an astonishing flavor. The Empress Julia Augusta often said she was indebted to the goodness of the Percine wine for living to the age of eighty-two.

But although there is so much to condemn in the customs and habits of the ancients in this respect, yet we should not forget that there is also much to admire and imitate.

It seems probable that the Romans were a very temperate people, for at least 600 years after the foundation of their city; for, before that period according to Pliny, wines were so scarce that the

* At Bremen there is a wine cellar where five hogsheads of Rhenish wine have been kept since 1625. 'If,' says an antiquary, 'a calculation be made, it will be found that the original cost (£50) at compound interest would now amount to 100,000 millions of pounds sterling, a single bottle would amount to £908,311, and one glass to £113,942.'

libations to the gods were made with milk. Numa, the successor of Romulus, enacted, on account of the great scarcity of wine, that no man should besprinkle the funeral pile with it: and when the offer of wine was allowed in sacrifice at all, it was decreed, with the intention of encouraging the cultivation of the grape, that all wine thus offered should be the produce of such plants as had been cut and pruned.

In the early ages of Rome women were prohibited from using wine, and hence their near relations were allowed to salute them in order that they might ascertain by the sense of smell if they had been drinking it. We learn from Dionysius Halicarnassensis that Romulus made a law that a husband might kill his wife for drinking, as well as for adultery. And Fabius Pictor in his annals relates that a Roman lady was stoned to death by her own relations for having picked the lock of a chest in which were the keys of the wine cellar. Pliny also tells us that Cneius Domitius, a judge in Rome, in a similar case pronounced sentence against a woman because 'it seemed she had drunk more wine without her husband's knowledge than was necessary for the preservation of her health,' and that therefore she should lose the benefit of her dowry.* Every one knows the contempt and

* The customs of females seem sadly changed in Seneca's time, for he complains that this prohibition was almost universally violated. 'Women,' says he, 'now value themselves upon carrying excess of wine to as great an extent as the most robust men : like them they pass whole nights at table, and with a full glass of unmixed wine in their hands they glory in vying with them, and if they can in overcoming them.'

abhorrence with which drunkenness was regarded by the hardy and intrepid inhabitants of ancient Sparta; and although the benevolent and conscientious mind cannot approve the means employed by them to disgust their children with the vile and odious practice, yet we must give them the meed of approbation for the end they had in view.

The shafts of wit and ridicule were then as now occasionally directed against intemperance. 'There hangs a bottle of wine,' exclaimed the Roman soldiers as they pointed to the body of the drunken Bonosus, who in a fit of despair had hung himself on a tree. 'If you wish to have a shoe of durable materials,' says Matthew Langsberg, 'you should make the upper leather of the mouth of a hard drinker, for that never lets in the water.'

In comparing the manners and customs of the present day with those of the dark ages, and of still more remote antiquity, although perhaps an amendment can be perceived in the increased temperance of the higher classes; yet we cannot doubt that a very great deterioration has taken place among the middle and lower ranks. The substitution of rum, gin, whiskey, brandy, &c., for the more innocent and less intoxicating beverages of former times, has been productive of the most mischievous and ruinous consequences to the health, morals, and happiness of the community.

Intemperance is certainly the crying sin of our age, but it is much more prevalent in some countries than in others. 'Drunkenness,' says Dr. M'Nish, 'prevails to a much greater extent in northern than in southern latitudes. The nature

of the climate renders this inevitable, and gives to the human frame its capabilities of withstanding liquors: hence a quantity, which scarcely ruffles the frozen current of a Norwegian's blood, would scatter madness and fever into the brain of the Hindoo. Even in Europe the inhabitants of the south are far less adapted to sustain intoxicating agents than those of the north. Much of this depends upon the coldness of the climate, and much also upon the peculiar, physical, and moral frame to which that coldness gives rise. The natives of the south are a lively, versatile people: sanguine in their temperament, and susceptible to an extraordinary degree of every impression. Their minds seem to inherit the brilliancy of their climate, and are rich with sparkling thoughts and beautiful imagery. The northern nations are the reverse of all this. With more intensity of purpose, with greater depth of reasoning powers, and superior solidity of judgment, they are in a great measure destitute of that sportive and creative brilliancy which hangs like a rainbow over the spirits of the south, and clothes them in a perpetual sunshine of delight. The one is chiefly led by the heart, the other by the head. The one possesses the beauty of the flower garden, the other the sternness of the rock mixed with its severe and naked hardihood. Upon constitutions so differently organized it cannot be expected that a given portion of stimulus will operate with equal power. The airy, inflammable nature of the first is easily roused to excitation, and manifests feelings which the second does not experience till he has partaken much more largely of the stimulating

cause. On this account the one may be inebriated and the other remain comparatively sober upon a similar quantity. In speaking of this subject, it is always to be remembered that a person is not to be considered a drunkard because he consumes a certain portion of liquor; but because what he does consume produces certain effects upon his system. The Russian therefore may take six glasses a day and be as temperate as the Italian who takes four, or the Indian who takes two. But even when this is acceded to, the balance of sobriety will be found in favor of the south; the inhabitants there not only drink less, but are *bonâ fide* more seldom intoxicated than the others. Those who have contrasted London and Paris, may easily verify this fact: and those who have done the same of Moscow and Rome, can bear still stronger testimony. Who ever heard of an Englishman sipping *eau sucree*, and treating his friends to a glass of lemonade? Yet such things are common in France: and of all the practices of that country, they are those most thoroughly visited by the contemptuous malisons of John Bull.'

It is very doubtful however whether the ingenious idea of Dr. M'Nish, that it will take more to intoxicate a Russian or an Englishman than a Frenchman or an Italian can be sustained, at least to the extent to which he seems to carry it.

Savage nations seem particularly fond of intoxicating liquors, and with scarcely an exception have contrived by some means or other to enjoy that luxury. Among them the inhabitants of Kamtschatka are perhaps as much devoted to the use of ardent spirits as any other people.

Such as cannot distil it themselves, procure it from the Russian and Cossack merchants, who, knowing their blind attachment to its bewitching qualities, sometimes take advantage of their weakness, as the following anecdote related by Lesseps will fully illustrate. A Kamtschatdale had given a sable for a glass of brandy. Inflamed with a desire of drinking another, he invited the seller into his house. The merchant thanked him, but said he was in a hurry. The Kamtschatdale renewed his solicitations, and proposed a second bargain: he prevailed:—'Come, another glass for this sable: it is a finer one than the first.' 'No, I must keep the rest of my brandy; I have promised to sell it at a certain place, and I must be gone:' 'Stay a moment: here are two sables.' 'Tis all in vain.' 'Well, come, I will add another.' 'Agreed—drink.' Meanwhile the three sables were seized, and the hypocrite made a fresh pretence to get away: his host redoubled his importunities to retain him, and demanded a third glass. Further refusals, and further offers were made. The higher the chapman raised his price, the more the Kamtschatdale was prodigal of his furs. Who would have supposed that it would end in the sacrifice of seven most beautiful sables for the glass! They were all he had.

CHAPTER IV.

Immediate Effects of Ardent Spirits on the Physical Constitution.

The effects of ardent spirits are so various, so extensive in their ramifications, give rise to so many diseases, and influence the constitution in so many ways, that this division of the subject alone would require a volume to discuss it fully; and therefore we can only give a brief outline of its most prominent effects.

Whenever alcohol in any form is taken into the stomach an almost immediate effect is produced on the system; the pulse rises—the skin glows—the spirits become light and joyous—care vanishes—sorrow is forgotten—business is neglected; as the potations increase, other and more striking symptoms are produced; the head becomes sensibly affected—the patient (for patient the drunkard may now be called) sees double—he talks immoderately and foolishly—he pours out the profoundest secrets of his bosom—laughs without cause, or weeps without knowing it; although conscious of the ridiculous part he is acting, and perhaps deeply mortified at it, he cannot restrain himself; the power of volition is much impaired or totally lost; and now as glass after glass is quaffed by the wretched and insensate animal, the scene thickens, his remaining powers of mind and body rapidly

disappear; if he attempts to walk, his limbs refuse to perform their office—he is vociferous or musical, and generally quarrelsome—takes offence at the slightest provocation, or at no provocation at all—makes the most ridiculous mistakes, and miscalls his most intimate acquaintances—asks pardon where he has done no wrong—talks to and of persons who are absent or dead as if they were actually before him: the expression of his countenance now becomes idiotic—his mouth is wide open—his eye is sunken and listless—his head hangs on his shoulder—he is no longer able to articulate—he staggers, reels, and falls, for he is *dead drunk*.

If the drunkard escape an apoplectic fit (of which he is in no little danger) he should be carried to bed, where he is soon destined to experience the appalling effects of his brutish debauch; perhaps he will fall into a profound sleep as complete and total as that of death, or more probably he will be harassed and annoyed by 'thick-coming fancies;' he may dream of his past carousal, of his drunken companions, of their noisy mirth and hideous yells, or what is still more likely to occur, if the tipler be but a beginner in the path of intemperance, his stomach will revolt at the load imposed upon it—nausea will succeed, and a violent emesis will somewhat relieve the oppressed debauchee.

But, however the night may be passed, when

> 'Morning comes, his cares return
> With ten-fold rage.'

He awakes with a burning fever—his skin is hot and dry—his hands hard and parched—he has a

violent head-ache—his eye is inflamed and intolerant of light—a distressing nausea prevails, and his appetite has fled. A thirst almost unquenchable torments him*—his spirits are depressed, and all his sensations are of the most painful nature, and in the agony of his distress and mortification he perhaps solemnly vows never again to touch the enticing bowl; a vow alas! which melancholy experience daily proves is too soon violated.

Such are the principal appearances which are generally exhibited during, and immediately after, a fit of intoxication. These phenomena are much varied, according to the temperament and habits of the individual. Some are gay and talkative and frolicsome—others are silent, reserved, and sullen. One will be mild, gentle, and obliging; another will be furious, revengeful, and malicious. One like the ferocious Alexander will plunge his dagger into the bosom of his dearest friend, while another will shed tears of sympathy at even a fabulous tale of human suffering.

It is an old adage, that 'in vino veritas,' and it is generally believed that the drunkard during his fit of intoxication will display his most prominent traits of character. The sensualist will exhibit his amorous propensities—the petulant will quarrel—the calumniator will slander his friend—even the miser, it is said, will display as it were 'the ruling passion, strong in death,' and not give a farthing to alleviate the direst distresses of suffering humanity.

* The action of the kidneys is always increased. Et corius interdum improviso mingit, et alvum exonerat.

The description given above of the drunken fit, is perhaps in most of its particulars, more applicable to the man who has seldom indulged in the phrenzy of the bottle, than to the habitual drunkard, for in the latter the frequent repetition of the habit causes considerable variation in the phenomena: he enjoys few or none of those agreeable sensations which beset the path of the inexperienced tipler, and allure him on to dissipation and ruin. Like all other human gratifications, the pleasure, whatever it be, which is derived from indulgence in ardent spirits, grows less and less by repetition, while the quantity required to produce any impression is constantly increasing in an almost geometrical ratio.

The body of the inebriate during the paroxism of intoxication is exceedingly insensible to external impressions of every kind. It is related of a sailor in the British navy, that during a drunken fit he quarreled with his wife, and in the midst of his passion seized a butcher's clever and cut off two of his own fingers. The wound was dressed, and the man put to bed. On his awakening in the morning he had no recollection of what had happened, and manifested the greatest sorrow and mortification on learning that the misfortune had occurred through his own rashness and folly.

It is an interesting fact, that the drunken fit can be broken by any sudden excitement, as overwhelming fear, intense joy, or acute sorrow. The same effect will also frequently be produced by throwing a bucket of cold water over the drunkard, or by his falling into a stream.

The same quantity of alcoholic stimulus will

produce very different effects at different times on the same individual. A much smaller quantity will intoxicate when taken upon an empty stomach than after a full meal. This is shown by daily experience and observation. Every one therefore who wishes to avoid the exciting effects of this stimulus as much as possible, will never drink fasting. Captain Bligh relates in his narrative, that when during a scarcity of provision in one of his voyages the allowance of food and water to each man was reduced to almost nothing, even a tea spoonful of rum would frequently produce intoxication.

In some forms of disease, as tetanus, gangrene, and retrocedent gout, much greater quantities of alcohol can be borne than in a state of health, without causing intoxication.

An individual who has been accustomed to any strong stimulus will often be unaffected by it, while one much weaker will produce an immediate and powerful effect upon him. 'I have known people,' says M'Nish, 'who will drink eight or ten glasses of raw spirits at a sitting without feeling them much, become perfectly intoxicated by half the quantity made into toddy.' And sometimes a change from one kind to another, even where the strength of the liquor is precisely the same, is productive of violent consequences.

CHAPTER V.

Remote Effects of Ardent Spirits on the Physical Constitution.

We will now proceed to detail the principal morbid derangements, and give an account of the principal diseases caused by the habitual use of ardent spirits, reserving the consideration of its effects on the moral and intellectual character for another chapter.

It does not seem yet to be fully settled whether alcohol is absorbed into the circulation, and thus produces its deleterious consequences, or whether its influences are confined chiefly to the nerves. It is at least certain that it sometimes operates exclusively in the latter mode. This is the case undoubtedly: when taken in very large quantities into the stomach it produces instantaneous insensibility, and even death, before time has been allowed for absorption.

Orfila, in his Toxicologie Generale, states that alcohol, when injected into the cellular substance of a dog, produced but slight effects: but when thrown into the stomach, the consequences were decided and immediate. Even when injected into the veins of a dog, alcohol would not cause death for several hours, while a small quantity of opium used in the same manner was fatal in a few minutes.

Brodie is of opinion that there is no absorption whatever of alcohol, and for the following reasons: 1st. 'In experiments where animals have been killed by the injection of spirits into the stomach I have found this organ to bear the marks of great inflammation, but never any preternatural appearances whatever in the brain. 2d. the effects of spirits taken into the stomach in the last experiment were so instantaneous that it appears impossible that absorption should have taken place before they were produced. 3d. A person who is intoxicated frequently becomes suddenly sober after vomiting. 4th. In the experiments which I have just related, I mixed tincture of rhubarb with the spirits, knowing from the experiments of Mr. Home, and Mr. Brande, that this (rhubarb) when absorbed into the circulation, was readily separated from the blood by the kidneys, and that very small quantities might be detected in the urine by the addition of potash: but though I never failed to find urine in the bladder, I never detected rhubarb in it.'

The contrary opinion however is maintained by most writers on this subject, and indeed it seems impossible to resist this conclusion after a candid consideration of the following facts: 1st. The blood of a drunkard is darker than that of a common man. 2d. His breath and perspiration are strongly marked with the smell of alcoholic liquors. 3d. His perspiration is said frequently to be of the color of his ordinary drink, as claret, port, &c.; and even his linen will occasionally be tinged by it.

1. *Effects of Ardent Spirits on the Stomach.*

No organ of the body probably is so much deranged by the habitual use of alcoholic stimulants as the stomach, while there is none the healthy state of which is so important to the regular operations of animal life. Alcohol used constantly, and in considerable quantities, causes inflammation of this delicate organ, which is generally of the chronic kind. This disease is insidious in its character, and slow in its effects, but it invariably advances while the noxious cause is continually applied, until great induration, scirrhus, and sometimes cancers are the deplorable consequences. The pyloric and cardiac orifices become occasionally indurated and contracted, and when this is the case death soon puts an end to the tantalizing suffering of the wretched victim.

This disordered state of the cardiac and pyloric orifices, and the organ generally, renders it very difficult for the patient to retain any food on the stomach, it being ejected almost as soon as swallowed. And even the small quantity which does remain is imperfectly digested, and gives rise to flatulency, pyrodinia, &c. Obstinate costiveness, or a profuse diarrhœa, is also a frequent attendant, and emaciation to an extreme degree rapidly follows.

From the disordered state of the stomach and other chylopoietic viscera, dyspepsia, in its most harassing and peace-destroying form, invariably attends the drunkard. An appetite for breakfast, which is always considered indicative of health,

is a luxury unknown to him. The loss of this appetite is perhaps the first step towards dyspepsia and hypochondriacism. The stomach from being over-stimulated becomes torpid, and is disinclined to the simple and proper food which naturally forms our breakfast. The drunkard when he rises in the morning is nervous, agitated, and distressed, until the bottle is resorted to, to impart anew a momentary life and activity. He cannot endure the sight of food before his stomach is goaded on to fresh exertion and renewed efforts by potations of his favorite drink. But this excitement is of necessity followed by greater depression, and then cardialgia, flatulency, nausea, acidity, all conspire to increase the bitterness of his situation, and enhance the acute misery of his feelings.

Towards the close of the drunkard's career the powers of the stomach seem to become almost exhausted, and although he still feels as keen a relish as ever for the intoxicating bowl, he cannot bear it as well as formerly. A much smaller quantity will intoxicate him. This no doubt arises from the weakness of this organ, owing to the long-continued excitement in which it has been constantly kept. He is also now harassed with continual nausea and frequent vomiting. His appetite deserts him, and he seems to retain a relish for nothing, and to enjoy nothing but the liquid fire which has been so long undermining his constitution, and consuming his very vitals.

In this wretched state he resorts to bitters mixed with ardent spirits. But this last attempt to restore the wonted energy of the stomach is completely ineffectual. Bitters, which sometimes

benefit dyspeptics from other causes, rather aggravate the drunkard's wretchedness.

2. *Effects on the Liver.*

Next to the stomach the liver suffers most severely from a long course of intemperance. The sudden changes of temperature to which the drunkard is so much exposed from carelessness and inattention, may have some effect in bringing on inflammation of this organ: but the chief cause is undoubtedly the alcoholic stimulus.

Intoxicating liquors have been known from the earliest ages to affect this viscus: and the story of Prometheus is generally supposed to allude to the effects of wine upon the human body, and the punishment to which he was doomed of having his liver devoured by a vulture, was the penalty for excessive indulgence in the pleasures of drinking. Other animals besides man suffer in the same way. Hogs which are kept upon the refuse of breweries and distilleries have diseased livers. Dealers in fowls are likewise said to increase the size of the livers in these animals, which are considered a great delicacy, by mixing gin with their food.

As the liver is an organ of great insensibility, it is frequently much diseased, and may even give rise to serious attacks of indigestion without the patient feeling pain, or being conscious of disease. But a greater or less derangement of this important part is the penalty which almost invariably attends the excessive and long-continued use of vinous or spirituous potations.

It sometimes becomes enlarged and tuberculated, and even wholly disorganized: and the consequences of this extensive state of disease are necessarily injurious to health, although the patient may not suffer much immediate pain. The bile will not be secreted in its usual quantity, or of proper quality, and of course digestion is impaired. The bowels, being deprived of their natural stimulus, are torpid and costive, and their discharges clay-colored. Jaundice follows, and the skin becomes dry, rough, and yellow.

Dropsy also is a consequence of diseased liver in the drunkard: or it arises from general debility of the system, brought on by dram drinking. In the former case it will probably be confined to the abdomen, while in the latter it will extend over the whole body.

3. *Its Effects on the Brain.*

The brain likewise often suffers intensely from excessive drinking. Inflammation of this organ may arise immediately after a debauch, or according to Dr. M'Nish, it may be caused secondarily during the stage of debility, and even an abstraction of stimulus, as by applying too much cold water to the head, may bring it on in this latter state.

The inflammation is frequently of a chronic and insidious nature. It is said to occur oftener after forty years of age than before that period. The dura and pia mater are thickened, and less transparent than in a state of health. The substance

of the organ itself is either preternaturally hard, or morbidly soft. Effusion also occurs in the different cavities.

These manifestations of disease in this delicate and important organ will account for the intellectual degradation, the deranged memory, and the gradual extinction of the mental powers which are so conspicuous in the confirmed drunkard.

Having shown the effects of ardent spirit on some of the principal organs of the body, I proceed now to a consideration of the particular diseases it occasions.

1. *Ophthalmia.*

The eyes of drunkards are always or generally in a state of inflammation. This did not escape the observation of the wisest of men. 'Who hath woe? Who hath sorrow? Who hath contentions? Who hath babbling? Who hath wounds without cause? Who hath redness of eyes? They that tarry long at the wine: they that go to seek mixed wine.'

This delicate organ is so constructed that it readily exhibits the effects of increased circulation by the swollen vessels in the tunica adnata, and hence no part of the body so soon betrays a debauch as this. Long-continued intemperance not only brings on ophthalmia, but actually impairs vision. And the tunica adnata from frequent inflammation finally loses its original clearness and transparency.*

* Inflammation of the nostrils, and redness of the nose frequently attend upon the drunkard. Shakspeare with

2. *Gout.*

This disease is one of the most painful in the whole catalogue of human ills, and is a penalty almost invariably exacted by nature of the copious wine-bibber. It seems but seldom to attack the drinker of ardent spirits, for his diseases are of a more destructive and incurable character.

Gout, perhaps, more than any other complaint, is caused *solely* by excessive indulgence in wine and malt liquors. Doctor Garnet remarks, 'I believe there never was an instance of a person having the gout who totally abstained from every form of alcohol, however he might live in other respects; and I doubt very much if the gout ever returned after a person had abstained from fermented or spirituous liquors for two years.'

This seems conclusively proved by gout being almost exclusively confined to the higher and more luxurious classes, and never attacking the industrious and laborious poor. It is a legacy handed down from generation to generation by the rich and noble as a portion of their inheritance.

Probably in most instances nothing more is needed to effect a radical cure of this disease, than to abstain *in toto* from alcohol in every form.

The celebrated Sydenham remarks, 'if an empiric could give small beer only to gouty patients as a nostrum, and persuade them to drink no other

his usual discrimination has noticed this circumstance. *Falstaff.*—Thou art our admiral: thou bearest the lanthorn in the poop: but 'tis in the *nose* of thee: thou art the knight of the burning lamp.

spirituous fluids, he might rescue thousands from this disease, and acquire a fortune for his ingenuity.'

Among the Persians the gout and stone are scarcely known, because the use of wine is prohibited by their religion, while both are very frequent among those people where wine abounds, as the inhabitants of the banks of the Rhine, the Austrians, Italians, and others.

3. *Corpulency.*

This uncomfortable and unnatural state of the body is well known to be an ordinary attendant upon the excessive use of wine and malt liquors: while the contrary and not less distressing extreme is the consequence of drinking ardent spirits.

The excessive protuberance of wine-drinkers is owing to the great accumulation of fat upon the omentum and abdominal muscles: and it is a singular fact, that as this is the first part to become enlarged, so it is the last to part with its superabundance of fat; and hence we sometimes see individuals with prodigious stomachs while their legs are no larger than spindles.

4. *Epilepsy.*

Intemperance frequently brings on attacks of this distressing malady; and there are some individuals so predisposed to it that a paroxysm is the inevitable consequence of even a slight indulgence

in the use of ardent spirits. These attacks seem to be owing to the increased determination of blood to the head, which is the natural effect of alcohol stimulants.

The unhappy victims are of course, during such periods, doubly exposed to numerous and distressing accidents. Doctor Trotter relates that two men in this condition fell overboard ship and were drowned.

5. *Hysterics.*

Females, who are addicted to the disgusting vice of intemperance, are very frequently attacked with hysterics during the paroxysm. There is a delicacy of constitution, both mental and physical, in the female sex which places them peculiarly under the control of external excitements. Hence the exhilaration produced by wine and ardent spirits, not unfrequently ends in a violent hysteric fit.

6. *Perspiration Altered.*

The perspiration of a habitual drunkard often has a decided alcoholic odor. It is said by some authors occasionally to partake even of the color of the liquor, upon which the debauch has been committed; as in the instance of claret and port drinkers.*

* M'Nish's Anatomy of Drunkenness.

7. *Ulcers.*

Nothing can exceed the loathsome and disgusting condition of a drunkard's leg when covered, as is often the case, with ulcers, And every physician knows to his sorrow how difficult is their cure and how obstinate their nature. A bruise which on a healthy skin, would get well in a few hours without medical aid, on a drunkard's will spread into a large, foul, ill-conditioned sore, which can with difficulty be healed in weeks.

8. *Gutta Rosacea.*

Eruptions of various size and color appear about the face and various parts of the body of the inebriate, but more especially about his nose. Trotter thinks that these are to be attributed to the chemical qualities of alcohol, probably by the evolution of hydrogen in the course of the circulation, and perhaps in part to the increased flow of blood to the head.

This deformity is always disgusting, but particularly in females.

9. *Change of Temperament.*

A long continued and excessive use of alcoholic drinks gradually effects a change in the temperament or nervous system of the drunkard. The habits, as the practice continues, seem to be en-

tirely changed, and the victim becomes as it were a new man. He is rendered fretful, nervous, and peevish; he is affected with hypochondriacism, and the whole train of nervous diseases; and a confirmed nervous temperament is not unfrequently the consequence.

10. *Tremors.*

Every one has remarked the universal tremulousness of the sot. His gait is tottering, and his whole frame is shaken. His hand trembles, and cannot without great difficulty carry the poisoned chalice to his lips. This is particularly the case in the morning when this affection exists to so great a degree, that until the potations are repeated, the drunkard is unfit and ashamed to appear before his associates. But he makes use of a prescription unheard of in any other case, viz: employing as a remedy the very means which have caused all the mischief—drinking to remedy the effects of drinking; and as might be expected he is only adding fuel to the fire.

11. *Mania a potu, or Temporary Madness.*

This disease, with all its attendant horrors, is the legitimate consequence of intemperance, and is caused by it alone. It is of the most ferocious and intractable nature. The patient is violent and outrageous, attacks every one around him, and can only be restrained by a strait-jacket. The

fit is sometimes short-lived, continuing only a few hours, or a day or two; while in other cases it will last for two or three weeks, or even longer.

It in general attacks confirmed drunkards only, and usually comes on after a debauch of several days' continuance. It sometimes commences with loss of appetite, lassitude, and frequent rigors. The pulse is feeble and increased in frequency, and the body is covered with a clammy sweat. Sleep seldom blesses the unhappy victim with its presence, and where it does it is of a disturbed and frightful character. The most fantastic or the most horrid dreams disturb and affright him. Muscæ volitantes, or objects still more annoying, and even terrific, are constantly floating before his disordered vision. He is in the greatest affliction about his own affairs, which he thinks are in the most chaotic disorder; and he not unfrequently imagines that those around him, and particularly his most intimate friends, are engaged in a conspiracy to defraud and ruin him. After continuing in this state for a period, which varies from a few hours to several days, the patient will frequently sink into a profound sleep, from which he will awake perfectly sane, and scarcely recollecting any thing that had occurred during his illness.

It sometimes however proves fatal, and at others ends in permanent madness, or confirmed idiocy.

12. *Melancholy.*

No idea is a more mistaken one than to imagine the drunkard a happy, or even a merry man,

I mean taking the average of the twenty-four hours. The forced and unnatural excitement which follows the too free use of the convivial glass, is succeeded by depression and misery which, to be fully understood, must be practically experienced. The drunkard is in fact the most melancholy man in existence.*

* The following anecdote will be found interesting, and not unaptly illustrates the depressing effects of inebriety, by whatever article it may be caused.

An English ambassador lately sent to a Mahometan prince, was conducted upon his arrival at the palace through several richly decorated and spacious apartments crowded with officers arrayed in superb dresses, to a room small in dimensions, but ornamented with the most splendid and costly furniture: the attendants withdrew. After a short interval two persons of superior mien entered the saloon followed by state bearers, carrying under a lofty canopy a litter covered with delicate silks, and the richest cashmere shawls, upon which lay a human form, to all appearance dead, except that its head was dangling loosely from side to side as the bearers moved into the room. Two officers, holding rich fillagree salvers, carried each a chalice, and a vial containing a black fluid. The ambassador considering the spectacle to be connected with some court ceremony of mourning, endeavored to retire. But he was soon undeceived by seeing the officers hold up the head of the apparent corpse, and after gently chafing the throat, and returning the tongue which hung from a mouth relaxed and gaping, they poured some of the black liquid into the throat and closed the jaws until it sank down the passage. After six or seven times repeating the ceremony, the figure opened its eyes and closed its mouth voluntarily. It then swallowed a large portion of the black fluid, and within the hour an animated being sat on the couch with blood returning into his lips, and the feeble power of articulation. In the Persian language he addressed his visitor, and inquired the particulars of his mission. Within two hours this extraordinary person became alert, and his mind capable

Every thing wears a dismal and gloomy aspect during his sober moments; 'an aching void is felt which nothing can fill but a renewal of the cup,' and every renewal is followed by additional wretchedness. Nothing can exceed the unutterable misery of the drunkard's morning hours—he is a prey to remorse and the keenest anguish arising from mispent time and wasted property, and blasted expectations. 'Brandy and gin have not the effect of the waters of Leth.

13. *Madness.*

Sir John Sinclair remarks that 'the excessive use of spirituous liquors among the lower ranks of people is justly considered a great cause of that deplorable evil, insanity, to which they are liable, as well as those bilious and dropsical complaints

of arduous business. The ambassador, after apologizing for the liberty, ventured to inquire into the cause of the scene he had just witnessed.

'Sir,' said he, 'I am an inveterate opium taker; I have by slow degrees fallen into this melancholy excess. Out of the diurnal twenty-four periods of time, I continually pass eighteen in this reverie. Unable to move, or to speak, I am yet conscious, and the time passes away amid the phantoms of this pleasing imagination; nor should I ever awake from the wanderings of this state had I not the most faithful and attached servants, whose regard and religious duty impel them to watch my pulse. As soon as my heart begins to falter, and my breathing is imperceptible, except on a mirror, they immediately pour the solution of opium into my throat, as you have seen. Within four hours I shall have swallowed many ounces, and much time will not pass away ere I relapse into my ordinary torpor.'

formerly so little known.' Drunkenness itself is a temporary madness; but in addition to this it is one of the most frequent causes of permanent derangement, as is proved by the melancholy details of our insane asylums and hospitals. And indeed how can it be otherwise when, as was shown in a former section, the brain is so seriously and constantly affected by intemperance? We all know that there is a mutual dependance between the mind and the body, and that the one invariably sympathizes with the other. But independantly of organic lesion, caused by long-continued habits of inebriety, madness may be brought on by the sudden and outrageous excitement of a violent debauch; and this derangement, although thus suddenly brought on, may be permanent.

Shakspeare thus delineates it: 'O thou invisible spirit of wine, if thou hast no name to be known by, let us call thee —— Devil! I remember a mass of things, but nothing distinctly: a quarrel, but nothing wherefore. O! that men should put an enemy in their mouths to steal away their brains! that we should with joy, revel, pleasure, and applause, transform ourselves into beasts! I will ask him for my place again: he shall tell me I am a drunkard! Had I as many mouths as hydra, such an answer would stop them all. To be now a sensible man, by and by a fool, and presently a beast! O, strange! Every inordinate cup is unblessed, and the ingredient is a devil!'

14. *Effects of Inebriety on the Offspring of Intemperate Parents.*

There can be no doubt, for it is as well established as any other fact in medicine, that the temperament, general degree of health, habits, predispositions, &c., of the parent are very apt to descend to the child. And if the health of the father or mother has been impaired by a long course of inebriety, or their intellectual power much deteriorated, we may expect to see its lamentable consequences in the debilitated bodies and enervated minds of their unhappy progeny. Probably this effect is more striking, and its results more appalling, where the mother is a devotee of this disgusting practice, than if the father only be in the habit of it. The influence of the mother's habits over the physical as well as the moral and intellectual character of the children seems to be of a more decided nature than that of the father. How doubly awful then does the guilt of this vice appear when viewed in this two-fold aspect!

In connexion with the influence of the mother's habits upon the health and constitution of the child, we cannot too strongly reprobate the pernicious practice, still but too common, of nursing women employing habitually brandy and other alcoholic stimulants, in order, as is said, to afford them strength to sustain the new call made upon them. To say nothing of the danger to the mother herself of forming in this way habits of intemperance, is there not great danger of seri-

ously affecting the health of the child,* if not of early instilling into it a taste for ardent spirits? We all know that the milk of the nurse is not a little influenced by the diet and medicines she may use. The infant can be purged by oil or calomel taken by the nurse: and have we not as much reason to fear that the constant employment of such powerful agents as brandy, cordials, &c., may exert an equally powerful influence upon the tender and susceptible, and excitable frame of an infant? We have all seen these deleterious influences, when the intemperate habits of the parents have been carried to a very great extent, in the production of dropsy of the brain, imbecility of mind, and a long train of physical and intellectual evils, which perhaps at the time may have been attributed to hereditary predisposition, or to other causes. There cannot be the least excuse for this indulgence on the part of the nurse, for it is not only *always* useless, but positively injurious.†

A suitable and nutritious diet will be amply sufficient to sustain a woman while nursing, and she may rest assured will be much more conducive to her own health and that of her tender charge, than the artificial stimulus of ardent spirits can possibly be.

* In pueritia lac, sensim dilutius, deinde aqua in robore ætatis, in senectute vinum molle, edenlutum.—*Boerhaave.*

† Doctor North remarks, that children nursed by intemperate women are peculiarly liable to derangements of the digestive organs and convulsive affections; and that he has seen the latter almost instantly removed by the child being transferred to a temperate woman.

15. *Premature Old Age.*

This is an universal and striking effect of intemperate habits. The drunkard 'does not live out half his days.' Long before the winter of age has come on we can see in the inebriate the destructive effects of his beastly habits—in his wrinkled face—his sunken eye—his quivering lip—his stammering tongue—his feeble and uncertain and tottering step—and his hoary head, which looks as if bleached by the frosts of many years. Nor is the mind—'that nobler part of man'—less a wreck than the body. Loss of memory, deficiency of judgment, excess of timidity, depression of spirits, want of energy, all indicate a mind enervated and overthrown by debauchery and dissipation.

CHATER VI.

Effects on the Moral Character.

The destructive—I may say the awful effects of intemperance on the moral character of man all admit, for all behold them. This branch of the subject it is my intention to touch but cursorily, leaving it to the divine and the moralist to treat it as its overwhelming importance demands.

'Intemperance! Poverty! Villany! Desolation! What an assemblage is here! how dreadful and how real! can it be read without concern, or is it possible it should be seen every day with indifference?'

Ardent spirits, freely and habitually taken, as effectually weaken and destroy the moral sense as they debilitate and undermine the physical constitution.

Drunkenness seems to corrupt men, and lead them on to villany and to crime, not only by taking away the restraints which generally control and overawe them, but also by adding the temptations of poverty which are apt to be too powerful for persons of this description to resist, whose views are usually limited by the desire of present gratification.

Drunkenness is the parent of idleness, and idleness of poverty; and poverty too frequently of vice, degradation, and crime.

The drunkard is apt to consider his situation as desperate—that his character is irretrievably lost—that all respectable men despise and distrust him, and that his circumstances in these respects cannot possibly be worse. These reflections are rapidly preparing him for any act of villany, however awful or appalling. With these feelings he meets his half-intoxicated companions, whom a similar course of vice and folly has reduced to a similar situation; and they readily become associated in the highway robbery, or the midnight murder.

The following are some of the moral evils produced by intemperance. 1. The temper is always sooner or later rendered peevish, fretful, and irascible. The least contradiction, or the slightest inconvenience, throws the habitual drunkard into a violent passion. He is continually disposed to quarrel and find fault with those around him, and especially with his nearest relations and best friends. His wife and children it affords him peculiar pleasure to contradict, harrass, perhaps even to beat. Those slight vexations which it is the lot of humanity continually to encounter, and which a temperate man would scarcely regard for a moment, are serious evils in the view of the drunkard, and effectually destroy his peace of mind for hours. His acquaintances are obliged to be constantly on their guard from fear of giving offence, for he frequently flies into a rage at a word or a look, when no offence was intended or imagined.

2. *A regularly increasing Contempt for the restraints of Moral Obligation.*

This disregard of moral rectitude is a gradual but almost invariable attendant upon intemperance.* The drunkard perhaps first becomes regardless of his appointments or engagements. He will break or neglect them without shame or remorse. He will defer or refuse to pay his debts. He forfeits his character as a man of veracity. His word cannot be depended on even where he has no interest in falsifying. From these deviations from the path of moral rectitude he proceeds with rapid strides to crimes of greater magnitude and deeper dye.

3. *A total disregard for the happiness of others.*

The drunkard is eminently a selfish being. He cares for no one but himself. Give him his bottle and gratify his personal wishes; and family and friends will form no object of solicitude or anxiety to him. His friends may be mortified—his property may be wasting—his wife may be unhappy—his children may be starving—but all—all will be unheeded in his downward road to destruction.

* The suitor, to whom Philip had not done justice, said, 'I appeal from Philip drunk to Philip sober.'

4. *A Contempt of the Good Opinion of the World.*

No man, whose moral sense is delicate and refined, can be insensible to the estimation in which he is held by his fellow men. But the drunkard will sacrifice reputation—character—all that the wise and good hold dear, rather than relinquish the intoxicating bowl. He is heedless of the blast of infamy. He is regardless alike of the contempt and the admonitions of those around him.

5. *Idleness and Prodigal Habits.*

These consequences never fail to follow in the train of intemperance. The drunkard is, we had almost said, necessarily a spendthrift. He not only expends his property in buying the intoxicating draught, but he squanders it in silly expenses, or wastes it by ridiculous and foolish bargains. And indeed this latter circumstance, against which no drunkard can be secure, is often more destructive of his property than idleness and the actual expense of the liquor combined.

6. *Intemperance leads to a neglect of, and contempt for Religion and its Institutions.**

* 'I wept because I thought of my own condition—of *that* there is no hope that it should ever change. The waters have gone over me. But out of the black depths could I be heard, I would cry out to all those who have but set a foot in the perilous flood. Could the youth—

to whom the flavor of his first wine is delicious as the opening scenes of life, or the entering upon some newly-discovered paradise—look into my desolation, and be made to understand what a dreary thing it is when a man shall feel himself going down a precipice with open eyes and a passive will—to see his destruction and have no power to stop it, and yet to feel it all the way emanating from himself: to perceive all goodness emptied out of him, and yet not to be able to forget a time when it was otherwise: to bear about the piteous spectacle of his own self-ruin:—could he see my fevered eye, feverish with last night's drinking, and feverishly looking forward to this night's repetition of the folly: could he feel the body of the death out of which I cry hourly with feebler and feebler outcry to be delivered—it were enough to make him dash the sparkling beverage to the earth in all the pride of its mantling temptation: to make him clasp his teeth,

'And not undo 'em;
To suffer wet damnation to run through 'em.'

'*Confessions of a Drunkard.*'

CHAPTER VII.

Intellectual Evils of Intemperance.

Although perhaps the intellectual are not so completely wrecked as the moral powers by intemperance, yet they are beyond a doubt not a little impaired and weakened. Possibly some of the lighter faculties of the mind, as the imagination may in some rare cases, even be quickened by the exciting effects of alcohol, but this is only a temporary result, while the permanent effect is decidedly injurious.

The drunkard soon loses that vivacity and sprightliness of intellect which is characteristic of mental and corporeal health. His mind becomes clouded, his perceptions are obscure, and he is, so far as his intellectual powers are concerned, like one exhausted by a long fit of sickness. His judgment is impaired, and he loses the power of weighing and discriminating different motives which may be presented to influence his conduct. His memory also is affected. He cannot recollect or relate distinctly any circumstance which requires a considerable exertion of this faculty.

The inebriate also loses that method and regularity in his pursuits which perhaps distinguished him in his sober days. Every thing is in confu-

sion. Trouble, perplexity, doubt, and uncertainty are obvious in his whole course of conduct: like a man in a confused and ill-assorted dream, he never knows when he is doing a thing in its proper place, or in the right manner.

Another misfortune experienced by the drunkard is the loss of all energy of character. Business—which before was entered upon with pleasure and alacrity, and pursued with zeal and energy—now terrifies and perplexes. The slightest obstacles, or the most trifling embarrassments, overcome the drunkard, and induce him to relinquish in disgust and despair any plan however necessary or important. Exertion of every kind is oppressive and distressing; and long-continued, persevering labor is entirely out of the question.

Doctor South asks, 'who has a stupid intellect, a broken memory, and a blasted wit; and, which is worse than all, a blind and benighted conscience, but the intemperate and luxurious, the epicure and the smell-feast? So impossible is it for a man to turn sot without making himself a blockhead too.'

The human mind is susceptible of excitement without the application of powerful stimulants; and we may rank the comparative talents of different individuals pretty nearly as they possess, or are destitute of this capability.

How revolting and degrading then is it for intellectual and immortal beings to resort to ardent spirits for that stimulus and excitement which they should receive from a contemplation of the wonderful works of nature, and from the exertion

of those Godlike mental powers with which their Creator has endowed them!

There is not a single faculty of the mind but what is sooner or later impaired and weakened by intemperate habits. Invention, memory, judgment, imagination, are all affected, and sometimes almost destroyed. The most profound and solid judgment—the most brilliant and discursive imagination—the most retentive and effective memory—the most pungent and sarcastic wit have all been exhibited in men remarkable for temperance and sobriety. Milton,* Newton, Franklin, Sir Wm. Jones, Washington, president Edwards, are striking exemplifications of this truth.

The inebriate loses all relish for the sublime in nature, and the beautiful in composition. 'The noble passages,' say the confessions of a drunkard, 'which formerly delighted me in history, or poetic fiction, now only draw a few weak tears allied to dotage. My broken and dispirited na-

* The following is Milton's description of his morning occupations.

'My morning haunts are where they should be, at home. Not sleeping or concocting the surfeits of an irregular feast, but up and stirring: in winter often ere the sound of any bell awake men to labor, or to devotion: in summer as oft with the bird that first rises, or not much tardier to read good authors, or cause them to be read, till attention be weary, or memory have its full freight: then with useful and generous labor preserving the body's health and hardiness, to render lightsome, clear, and not lumpish, obedience to the mind, to the cause of religion and our country's liberty, when it shall require firm hearts in sound bodies to stand and cover their stations, rather than to see the ruin of our protestation, and the enforcement of a slavish 'life.'

ture seems to sink before any thing great or admirable. I perpetually catch myself in tears from any cause or none. It is inexpressible how much this infirmity adds to a sense of shame, and a general feeling of deterioration.'

CHAPTER VIII.

Effects of Alcohol influenced by the intoxicating article.

The same quantity of alcohol drunk daily will produce very different effects on the system, according to the article which is made use of. Thus a bottle of wine, although it may contain as much alcohol as a pint of brandy, will affect an individual very differently, especially if habitually taken; and even rum, gin, whiskey, &c., vary in their consequences from brandy, and from each other; and malt liquors from all.

It has been demonstrated that wines of the same specific gravity, and of course containing the same absolute proportion of spirit, possess very different intoxicating powers: and hence it was formerly supposed that alcohol must necessarily exist in wine in a very different condition from that in which we know it in a separate state—that its elements only could be found in the vinous liquor, and that their union was caused, and of course alcohol produced by the action of distillation.

Rouelle maintained that alcohol was the *product*, not the *educt* of distillation, and that it was not completely formed until the temperature was raised to the point of distillation: this doctrine

was more recently revived and promulgated by Fabbroni in the memoirs of the Florentine academy. Gay Lussac however has refuted this opinion by separating the alcohol by distillation at the temperature of 66 degrees Fahrenheit, and by the aid of a vacuum it has since been effected at 56 degrees, and besides it has been shown by precipitating the coloring water and some of the other elements of wine by sub-acetate of lead, and then saturating the clear liquor with sub-carbonate of potass, that the alcohol may be completely separated without any elevation of temperature, and in this way Mr. Brande has been enabled to construct a table exhibiting the proportions of combined alcohol which exist in the several kinds of wine. No reasonable doubt therefore can remain upon this subject, and the difference in the effect of the same quantity of alcohol upon the human system in various states of combination is owing to the unintelligible power of chemical combination in modifying the activity of different substances. 'In the present instance the alcohol is so combined with the extractive matter of the wine that it is probably incapable of exerting its full specific effects upon the stomach before it becomes altered in its properties, or, in other words, *digested;* and this view of the subject may be fairly urged in explanation of the reason why the intoxicating effects of the same wine are so liable to vary in degree in the same individual, from the peculiar state of his digestive organs at the time of his potation. Hitherto we have only spoken of pure wine, but it is essential to state that the stronger wines of Spain, Portu-

gal, and Sicily, are rendered remarkable in this country by the addition of brandy, and must consequently contain *uncombined* alcohol, the proportion of which however will not necessarily bear a ratio to the quantity added, because at the period of its admixture a renewed fermentation is produced by the scientific vintner, which will assimilate and combine a certain portion of the foreign spirit with the wine: this manipulation in technical language is called *fretting-in*. The free alcohol may, according to the experiments of Fabbroni, be immediately separated by saturating the vinous fluid with sub-carbonate of potass, while the combined portion will remain undisturbed: in ascertaining the fabrication and salubrity of a wine, this circumstance ought always to constitute a leading feature in the inquiry; and the tables of Mr. Brande would have been greatly enhanced in practical value had the relative proportions of *uncombined* spirit been appreciated in his experiments, since it is to this, and not to the *combined* alcohol that the injurious effects of wine are to be attributed. It is well known, observes Dr. Macculloch, that diseases of the liver are the most common, and the most formidable of those produced by the use of *ardent* spirits; it is equally certain that no such disorders follow the intemperate use of *pure* wine, however long indulged in: to the concealed and unwitting consumption of spirit, therefore, as contained in the wines commonly drunk in this country is to be attributed the excessive prevalence of those hepatic affections which are comparatively little known to our continental neighbors. Thus much is certain,

that their ordinary wines contain no alcohol but what is disarmed of its virulence by the prophylactic energies of combination.'*

The following is Mr. Brande's table of the alcoholic strength of liquors :—

	Proportion of Spirit per cent. per measure.
1. Lissa	26.47
Ditto	24.35
Average	——25.41
2. Raisin wine	26.40
Ditto	25.77
Ditto	23.20
Average	——25.12
3. Marsala	26.03
Ditto	25.05
Average	——25.09
4. Madeira	24.42
Ditto	23.93
Ditto (Sircial)	21.40
Ditto	19.41
Average	——22.27
5. Currant wine	20.55
6. Sherry	19.81
Ditto	19.83
Ditto	18.79
Ditto	18.25
Average	——19.17
7. Teneriffe	19.79
8. Colares	19.75
9. Lachryma Christi	19.70
10. Constantia (white)	19.75
11. Ditto (red)	18.92
12. Lisbon	18.94
13. Malaga (1666)	18.94
14. Bucellas	18.49
15. Red Madeira	22.30
Ditto	18.40
Average	——20.35
16. Cape Muschat	18-25

* Paris's pharmacologia.

We will now offer a few remarks on the peculiar effects of the ordinary intoxicating drinks.

	Proportion of Spirit per cent. per measure.
17. Cape Madeira - - -	22 94
Ditto - - - -	20.50
Ditto - - - -	18.11
Average - - -	——20.51
18. Grape wine - - -	18.11
19. Calcavella - - -	19.20
Ditto - - - -	18.10
Average - - -	——18.65
20. Vidonia - - - -	19.25
21. Alba Flora - - -	17.26
22. Malaga - - - -	17.26
23. White Hermitage - -	17.43
24. Rousillon - - - -	19.00
Ditto - - - -	17.26
Average - - -	——18.13
25. Claret - - - -	17.11
Ditto - - - -	16.32
Ditto - - - -	14.08
Ditto - - - -	12.91
Average - - -	——15.10
26. Malmsey Madeira - -	16.40
27. Lunel - - - -	15.52
28. Shiraz - - - -	15.52
29. Syracuse - - - -	15.28
30. Sauterne - - - -	14.22
31. Burgundy - - -	16.60
Ditto - - - -	15.22
Ditto - - - -	14.53
Ditto - - - -	11.95
Average - - -	——14.57
32. Hock - - - -	14.37
Ditto - - - -	13.00
Ditto (old in cask) - -	8.88
Average - - -	——12.08
33. Nice - - - - -	14.63
34. Barsac - - - -	13.86
35. Tent - - - -	13.30

1. *Ardent Spirits.*

It is now well ascertained that although brandy, rum, gin, whiskey, and cider spirits contain nearly

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		Proportion of Spirit per cent. per measure
36.	Champaign (still) - -	13.80
	Ditto (sparkling) - -	12.80
	Ditto (red) - - -	12.56
	Ditto (ditto) - - -	11.30
	Average - - -	——12.61
37.	Red Hermitage - - -	12.32
38.	Vin de Grave - - -	13.94
	Ditto - - -	12.80
	Average - - -	——13.37
39.	Frontignac - - -	12.79
40.	Cote Rotie - - -	12.32
41.	Gooseberry wine - -	11.84
42.	Orange wine—average of six samples made by a London manufacturer - - -	11.26
43.	Tokay - - - -	9.88
44.	Elder wine - - -	9.88
45.	Cider, highest average -	9.87
	Ditto, lowest average -	5.21
46.	Perry, average of four samples	7.26
47.	Mead - - - -	7.32
48.	Ale (Burton) - - -	8.88
	Ditto (Edinburgh) - -	6.20
	Ditto (Dorchester) - -	5.56
	Average - - -	—— 6.87
49.	Brown stout - - -	6.80
50.	London porter, average -	4.20
51.	London small beer, average	1.28
52.	Brandy - - - -	53.39
53.	Rum - - - - -	53.68
54.	Gin - - - - -	51.60
55.	Scotch whisky - - -	54.32
56.	Irish (ditto) - - -	53.90

the same proportion of alcohol, yet their effects on the human system are considerably varied; and from causes which are not yet perfectly understood. It was formerly supposed, that of these brandy was the least prejudicial to health; but Shannon, in his elaborate and useful work on brewery, contends that brandy is the worst form in which alcohol can be taken; and in this opinion he is sustained by most of the late writers on this subject.

I am inclined to think however that more stress is laid upon this point than its importance justifies. It is probable that, as gin and whiskey possess considerable diuretic properties, this may in some measure diminish their injurious tendency, and thus render their destructive effects less to be dreaded than those of brandy. But their general operation is unquestionably very similar: their immediate and remote consequences are alike disastrous and appalling.

Compared with wine and malt liquors their influence is more rapidly and decidedly felt. They intoxicate sooner, and are more apt to give rise to inflammatory complaints than the former. They are also vastly more destructive of human life. When taken in large quantities they cause immediate prostration, coma, stupor, and even death.

The drinker of ardent spirits may always be known by his wrinkled and dejected visage, bloated and sallow countenance, inexpressive eye, quivering lip, and stammering tongue.

If they be taken habitually, instead of becoming corpulent, the tippler almost invariably grows emaciated—is harassed with dyspepsia—indurated

liver—dropsy—and a wretched and premature old age—or a miserable death soon overtakes him.

2. *Wines.*

The exhilarating and intoxicating effect of wine, like that of ardent spirits, is soon felt upon the system. But its remote effects on the health and happiness of the individual when taken habitually and in large quantities, although abundantly deleterious, are much less so than those of ardent spirits.

Unlike the brandy drinker, the wine bibber, with Falstaff, can boast the 'paunch well lined with capon;' and with this superabundance of body he is also blessed with a full rotundity of face. The diseases too which afflict the two races of topers are, in a considerable degree, different. 'Wine,' says Rush, 'attacks the extremities, while rum, like a bold invader, seizes at once upon the vitals, and takes the citadel by storm.' Wine produces gout—brandy dyspepsia, scirrhous liver, and dropsy.

3. *Malt Liquors.*

Some authors assert that the evil consequences resulting from an excessive use of malt liquors are even more to be dreaded than those of alcohol in other forms. They contend that this is the case, because, in addition to the intoxicating principle, some poisonous ingredients are generally added for the purpose of preserving them, and

giving them their bitter taste. We have good reason for believing, that occasionally the most deadly narcotic poisons are actually employed for this purpose, as opium, belladonna, cocculus Indicus, hyosciamus,* lauro cerasus, &c.

* This plant was employed by the Assassin Prince, commonly called the 'old man of the Mountain,' to intoxicate those whom he wished to engage in his service.

The following eloquent passage from a modern writer will prove interesting :

'There was at Alamoot, and also at Masiat in Syria, a delicious garden encompassed with lofty walls, adorned with trees and flowers of every kind—with murmuring rooks and translucent lakes—with bowers of roses and trellisses of the vine—airy halls and splendid kiosks, furnished with carpets of Persia, and silks of Byzantium. Beautiful maidens and blooming boys were the inhabitants of this delicious spot, which resounded with the melody of birds, the murmur of streams, and the tones and voices of instruments—all respired contentment and pleasure. When the Chief had noticed any youth to be distinguished for strength and resolution, he invited him to a banquet, where he placed him beside himself, conversed with him on the happiness reserved for the faithful, and contrived to administer to him an intoxicating draught prepared from the *hyosciamus*. While insensible he was conveyed to the garden of delight, and there awakened by the application of vinegar. On opening his eyes all paradise met his view ; the black-eyed and blue-robed houris surrounded him obedient to his wishes; sweet music filled his ears , the richest viands were served up in the most costly vessels, and the choicest wines sparkled in golden cups. The fortunate youth believed himself really in the paradise of the Prophet, and the language of his attendants confirmed this delusion. When he had had his fill of enjoyment, and nature was yielding to exhaustion, the opiate was again administered, and the sleeper transported back to the side of the Chief, to whom he communicated what had passed, and who assured him of the truth and reality of all he had experi-

But this seems rather a forced view of the subject, for although it cannot be denied that these ingredients are occasionally made use of, yet this is certainly not the case generally. And we have good reason for believing that malt liquors are the most innocent form in which alcohol can be taken, if we except perhaps pure cider, and the light wines. The immoderate use of this beverage however is attended with no little inconvenience, and sometimes even with danger. The porter drinker becomes immoderately fat—his intellect is rendered stupid and inert, and his eyes are heavy and destitute of expression. His circulation is slow and impeded, and his respiration stertorous and difficult.

He is in continual danger of apoplexy and palsy, and is often carried off by these fell foes of the drunkard. The great relief afforded by even a slight bleeding to the clogged and heavy machine of the porter drinker, sufficiently indicates the excess of blood with which he is loaded.

enced, telling him such was the bliss reserved for the obedient servants of the Imaum, and enjoining at the same time the strictest secrecy. Ever after the rapturous vision possessed the imagination of the deluded enthusiast, and he panted when the hour of death, received in obeying the commands of his superior, should dismiss him to the bowers of paradise.'—Von Hammer's History of the Assassins.

CHAPTER IX.

*Spontaneous Combustion of Drunkards.**

It is now several years since accounts of the spontaneous combustion of habitual drunkards were first published to the world. But the facts seemed so incredible—so contrary to the ordinary course of events, that the medical profession and the philosophic public were very slow in giving credence to them. At present however these cases have multiplied so much, and have been attested by such good authority, and in so many different ways, that it seems impossible to doubt the reality of their existence.

So far as I know, the earliest case on record is the following, contained in the Journal de Physique by Pierre Ame Lair. 'A woman of the lower class in Copenhagen in 1692, who had used spirituous liquors to such extent that she would take no other nourishment, having sat down one evening on a straw chair to sleep, was consumed in the night time, so that next morning no part of her was found but the skull and the extreme joints of the fingers: all the rest of her body, says Jacobœus, was reduced to ashes.'

The following striking case is related by Doctor Peter Schofield of the province of Upper Canada.

* See Appendix.

Speaking of cases of spontaneous combustion in drunkards he says—'One happened under my own observation. It was the case of a young man about twenty-five years of age: he had been an habitual drinker for many years. I saw him about nine o'clock in the evening on which it happened. He was then, as usual, not drunk, but full of liquor. About eleven the same evening I was called to see him. I found him literally roasted from the crown of his head to the soles of his feet. He was found in a blacksmith's shop just across the way from where he had been. The owner all of a sudden discovered an extensive light in his shop as though the whole building was in one general flame. He ran with the greatest precipitancy, and on flinging open the door discovered a man standing erect in the midst of a widely extended silver-colored blaze, bearing, as he described it, exactly the appearance of the wick of a burning candle in the midst of its own flame. He seized him by the shoulder and jerked him to the door, upon which the flame was instantly extinguished.

There was no fire in the shop, neither was there any possibility of fire having been communicated to him from any external source. It was purely a case of spontaneous ignition. A general sloughing soon came on, and his flesh was consumed, or removed in the dressing, leaving the bones and a few of the larger bloodvessels standing. The blood nevertheless rallied around the heart, and maintained the vital spark until the thirteenth day, when he died, not only the most loathsome, ill-featured, and dreadful picture that was ever pre-

sented to human view, but his shrieks, his cries, and lamentations, were enough to rend a heart of adamant. He complained of no pain of body—his flesh was gone. He said he was suffering the torments of hell; that he was just upon its threshold, and should soon enter its dismal caverns; and in this frame of mind gave up the ghost. O, the death of a drunkard! Well may it be said to beggar all description. I have seen other drunkards die, but never in a manner so awful and affecting. They usually go off senseless and stupid as it regards a future state!'

This whole subject is one of great interest to the philosophic inquirer, and deserves further and more scientific investigation than has yet been bestowed upon it. Various theories have been proposed to account for this singular phenomenon. Some have supposed it was owing to the formation of phosphuretted hydrogen in the body. This gas, it is well known, will take fire on exposure to the air; but there seems no proof that (if found at all in the human system), it is produced in such quantities as to account for the combustion of the whole body. We must therefore content ourselves with declaring our ignorance as to the causes of spontaneous combustion; although there can be no doubt, after all the evidence that has been adduced on this subject, that such instances have actually occurred.*

* I am indebted to Professor Silliman for the following remark:—'The entire body having become saturated with alcohol absorbed into all its tissues, becomes highly inflammable, as indicated by the vapor which reeks from the breath and lungs of a drunkard: this vapor, doubtless highly alcoholic, may take fire, and then the body slowly consume.'

CHAPTER X.

Do Alcoholic Stimulants Contribute to Strength?

This question has at different times given rise to no little discussion, but it seems at last irreversibly decided in the negative. The idea which formerly prevailed, that alcoholic liquors contribute permanently to strength, arose no doubt from the temporary feelings of excitement and apparent strength which they occasion. But these illusions have long since vanished before the reasonings and observations of a more correct philosophy, and a more extended experience.

Lord Bacon has somewhere remarked, that a regimen which conduces to the prolongation of life may be injurious to health; and that a regimen beneficial to health may abridge life—but although this may in some instances be true, yet as there is a close and intimate connexion between health and permanent strength, we may suppose that whatever conduces to the one will contribute to the other; and hence the best way of ascertaining whether alcoholic stimulants increase strength is to inquire into their effects on health.

The different degrees of debility, which may of course vary from the slightest degree of exhaustion to almost total prostration, can be relieved by two methods, the one gradual, the other rapid.

The gradual mode consists in employing sleep, rest, and food, or in other words accumulating the vital principle: the rapid mode is by the application of diffusible stimuli, *i. e.*, calling into action the vital principle which remains; as in syncope we apply ammonia, or any other pungent odor, to the nostrils.

Now the question is, which of these modes, the rapid or the gradual, is most likely to answer the purpose? No one can doubt a moment as to the answer. The one is the order of nature—the other is artificial—the one, although more dilatory in its operation, is unattended by any unpleasant consequences; while the other is sure to be followed by lassitude and depression exactly proportioned to the amount of excitement and stimulus applied and felt.

In the beautiful and expressive language of another, the stimulant restoratives may be compared to a 'stream which nourishes a plant upon its bank, and causes it to flourish and blossom to the sight, while at the same moment it is undermining it at the root.'

Rest, sleep, and food, are amply sufficient to repair the fatigue and restore the exhausted energy of all animated existence—'they are sufficient for the tribe in the branches of the forest, and for the deer which range below, for the flock on the mountain's side, and for the herd in the pasture of the valley. They are sufficient for the elephant, for the tiger, and the lion'—but man, poor deluded man! not satisfied with nature's ample provision for the restoration of strength, and the preservation of health, must have recourse to alcoholic stimulants.

The absurdity of such a course is strongly depicted by Milton in speaking of Sampson.

'O madness! to think use of strongest wines
And strongest drinks our chief support of health,
When God, with these forbidden, made choice to rear
His mighty champion, strong above compare,
Whose drink was only from the liquid brook.'

Who would think of applying the whip or the spur to a jaded and exhausted horse, in order to increase his strength, and restore his accustomed vigor? Yet such a course is not more ridiculous or absurd than that man's who employs brandy, or rum, or gin to invigorate his enervated stomach when disordered by improper diet, or long fasting, or excessive fatigue—in both instances, to be sure, new life and fresh animation, and apparent strength would be imparted, but we all know that the horse will eventually yield sooner than if a more merciful and rational course had been adopted; and so it is with the wretched inebriate who relies for aid on the stimulus of ardent spirits.

It is an undoubted fact that some periods of life can bear the excitement of alcoholic stimulants with less injury than others. Probably the most injurious time of administering spirituous potations is in infancy and early youth. At this tender age the fibres are more susceptible of excitement and irritation, the functions are more easily disordered, and the foundation may be laid of future disease which may then be incurable. The intellectual and moral faculties seem also at this period peculiarly liable to deterioration; and we doubt not that the literary progress of many a

talented child has been impeded, and his moral sense deadened by the early administration of stimulating drinks. How much then is this ridiculous and disgusting practice, which unfortunately is still by no means uncommon among the mothers of our country, to be deprecated!

Indeed the absurdity of the notion that the constant and habitual use of alcoholic stimulants contributes to permanent strength is made manifest by daily observation, as well as all past experience. The long and rapid marches of the ancient Greek and Roman armies, and the privations and labors they underwent, are much greater than could be endured by any modern European soldiery; and yet these men drank no ardent spirits. Some of the native East India troops in the employment of the British government possess the same power, and their religious ideas and customs deny them spirituous liquors. Sir John Moore's army were found to improve in health during their distressing march to Corunna as soon as the usual allowance of ardent spirits was unattainable.

It is related by Niger that he forbade the use of wine in his army, wishing the soldiers to accustom themselves to vinegar mixed with water, in conformity with the ancient regulation. It may readily be imagined that such a reform would give great offence to the troops: but Niger was resolute: and some soldiers, who guarded the frontiers of Egypt, having one day asked him for some wine—'What do you say,' replied he to them, 'you have the Nile, and wine is unnecessary for you.' Upon another occasion, some of his troops, being conquered by the Saracens, excused them-

selves upon the plea of weakness owing to this regulation. 'An excellent reason,' said he, 'for your conquerors drink nothing but water.'

In what manner different stimulants when taken into the stomach act upon the system is a question of no little interest to the pathologist and physiologist; and yet is one which is still involved in great obscurity. The mode in which these substances act is not perhaps absolutely incomprehensible, for who will dare to set bounds to human ingenuity, or to say that there are any laws of nature so obscure that they may not yet yield to human industry?

But, however this may be, we are at least certain that the hypotheses which have hitherto been proposed are far from being satisfactory upon this point.

Some substances when taken into the stomach increase the activity and vigor of all the organs of the body: this is the case with nourishing food of all kinds with tonics, alcohol, opium, &c. These we would call general stimulants.

There are other substances again which, when taken into the stomach, increase the activity and vigor of some particular organ of the body, as tartar emetic, castor oil, &c. These are local stimulants.

Many articles belong to both these classes: but all stimulants necessarily increase action, the effect being proportioned to the nature of the article, to the quantity taken, to the frequency of its repetition, and to the circumstances under which it is employed.

There is a great difference, not only in the manner, but the rapidity with which different stimulants act. Some produce their effect as soon as taken into the stomach, while others do not, except after long and frequent repetition. The former are generally highly diffusible, and their operations transitory—the latter cause more permanent changes, and effect those changes by obscure and almost imperceptible gradations.

It would seem as if there were a certain amount of activity and of motive power in the human system which alone is consistent with health, or there is a particular proportion in the activity of the different parts of the living system which must be maintained in order to preserve health. When this proportion is deranged, or this activity suddenly and rapidly increased, disease and sickness necessarily follow. All highly diffusible stimulants are therefore, from the very nature of their action, detrimental to health, since this nice proportion—this delicately adjusted equilibrium, is by their use destroyed. If such stimulants be used but once, or but seldom repeated, the healthy relation between the action of the different parts of the body may be quickly restored: but if they be used habitually and frequently, this relation is forever destroyed, and the health of the wretched victim irrecoverably undermined.

But it does not follow from these principles that stimulants may not be beneficial in disease, because here this relation is already lost, and stimulating articles may afford the only remedy by which the equilibrium can be restored. We may therefore lay it down as an incontrovertible

axiom* that stimulants are always injurious in health, although they may be, and sometimes are, beneficial in disease.

* A distinguished surgeon made the following experiment. He selected two children in perfect health, and gave every day after dinner to one a large China orange, and to the other a glass of wine. The former continued to enjoy good health, while the latter exhibited decided indications of fever—with furred tongue, high-colored urine, accelerated pulse, &c. &c.

CHAPTER XI.

Causes of Intemperance.

In order to apply with judgment and effect a remedy for the relief or cure of a disease, the physician generally thinks it important to make himself acquainted with its causes as well as with its symptoms and results. And perhaps on the same principle it may do something towards staying the flood of dissipation and intemperance which is desolating our land, to point out the causes, and trace the steps by which so many drunkards are made.

The causes which operate remotely and immediately, directly and indirectly in the extension and increase of this greatest of curses, are as various as the characters of the individuals who are operated upon by them. But although it will be impossible to detail all the circumstances which may aid in producing this result, yet we can point out some of the most prominent.

Beyond all doubt the most powerful cause of intemperance is the force of custom, the power of fashion, and example.*

* The following anecdote places in bold relief the absurdity of the practice of drinking, as well as the folly of devotion to fashion.—'In traveling some years since I met with a young foreigner who, having spent his winter

Man is emphatically a creature of fashion. If the practice of drinking ardent spirits in any

in London, was about to return to his native land. He descanted with some satire and considerable vivacity upon the manners and customs of England, 'but of all customs,' said he, 'the most ridiculous appears to me to be the mode in which you drink healths: one would think that drunkenness was a virtue, and that in order to incite men to it, it was necessary to persuade them to swallow large potations, by associating with the glass the friend we value, or the mistress we love. I arrived in the great metropolis with a desire to profit by the sources of improvement which it affords; and, in order to acquire useful commercial information, I had many recommendations to your first merchants, but the cup of knowledge was for ever put from my lips by the cup of Circe, and the morning's wish to be a man was fatally counteracted by the daily conspiracy which invariably made me a beast. It was in vain that I pleaded my dislike to wine, my inability to understand the political sentiment which I was called upon to pledge, or the toast, the name of a man of whom I had never heard: I was answered by some trite remark of compliance with custom; which was enforced by an adage of 'doing at Rome as others do:' this proverb is translated very literally by an Englishman for the benefit of all foreigners, but he can never be made to understand it in any country but his own. Having survived a course of dinners, with much suffering of body and mind, I saw an election impending, and felt that I must retreat or die. I prepared for my departure, not without many imprecations upon the demon so falsely called hospitality—how unlike the household deity I had been wont to worship! It was necessary, before I left the country, that I should entertain in return. My friends were invited, and my friends came. The dinner was prepared at one of their best taverns, and my orders were observed, for it was plentiful and profuse:—when that silent satisfaction prevailed, which declares that every man has eat as much as he possibly can, I addressed my guests to the following purport:—

'I am very sensible of your kindness to a stranger: I

and every form could once be rendered unfashionable—could be denounced as ungenteel, much, nay, we may say, every thing would be done towards banishing intemperance from our country—the victory would be won. But so long as it is fashionable to drink—so long as the nauseous custom of *treating* (as the vulgar phrase it) is universal—so long as the office-seeker deals out whiskey and rum to the office-giver—so long as the farmer distributes the bottle to his laborers, and the mechanic to his journeymen, and the ma-

do not see one man here who has not vied with his neighbor in performing the rites of hospitality in pursuance of good old customs, and for the glory of England. You have taught me how to be kind, and I in my way will endeavor to requite you.' Upon giving a signal a large Westphalia ham was set upon the table, and each man furnished with implements for eating. Having cut a large piece, and put it upon my fork, I stood up with much solemnity and said, "the King!" My guests endeavored to evade this: Gentlemen, said I, I call you to order: this is not a matter of choice, and I shall fine every man a bumper of ham who does not eat to the glory of that virtuous monarch. It was in vain that my friends repeatedly assured me that they could not eat, that they disliked every sort of swine's flesh! that they should be seriously ill! God forbid that you should not be sick, said I, my dear friends: which of you ever suffered me to depart well, or in my senses? I trust that I am not less hospitable, or less alive to the merits of the great man you have taught me to reverence. Not an orator in either house shall be forgotten, not an admiral, or a general that shall not have his corresponding piece of ham.' Why should I dwell longer upon this scene? I obliged them to eat for the honor of their country, till sick and disgusted I permitted them to depart: but I trust they carried with them a subject for reflection which will be recollected with advantage when I am far from them.'

nufacturer to his workmen—so long as men of all classes consider the proffer of ardent spirits as indicative of the spirit of hospitality—just so long will intemperance be rife in our land, and we be a nation of drunkards.

Another cause of intemperance is the deplorable practice of parents indulging and encouraging it in their children, by giving them ardent spirits on all occasions, and keeping it continually on their sideboards within the reach of all in the house. Nothing can be expected of children where such a custom is adopted, but that they should be confirmed drunkards. It is serving a regular apprenticeship to intemperance.

Another circumstance which, I am persuaded, has not a little influence, is the stimulating food, and especially the alcoholic medicines administered to children during infancy. At a period when the diet should be of the most bland and unirritating nature, how frequently do we see nurses and mothers feeding the little sufferer with toddy in various forms, peppermint, and a great variety of the most heating articles! If the child, from overfeeding, or any other cause, happens to have pain in its stomach or bowels—nothing, says the skillful nurse, so good for colic as brandy toddy—it removes the wind, and enables the patient to digest his food! If the stomach, after being loaded to excess, should fortunately reject the heterogeneous mass with which it has been gorged, why nothing is so effectual in relieving nausea as peppermint and gin! If the infant should be restless and cry, paregoric, made of alcohol, spices, and opium, must be administered.

Thus every indisposition, however trifling or however caused, is made an excuse for crowding down, in some form or other, alcohol and the most stimulating articles which the materia medica furnishes. As if the nurse were making an experiment to see how much injury, moral, intellectual, and physical she could contrive to inflict on the helpless being committed to her charge! Is it not a natural result from such a course, that the stomach being accustomed to a stimulating diet in infancy when the system is susceptible to impressions, and easily controlled by habit, should at a more mature age require a continuance of the same stimulus? The natural delicacy of the mucous membrane of the mouth and stomach being impaired and injured by a long course of stimulation—food of the ordinary kind becomes insipid and tasteless, and recourse must be had to bitters and tonics in order to supply the deficiency. I have no doubt that many a sot has been made by the injudicious use of alcoholic medicines, and a stimulating regimen in infancy and early youth.

Allied to this practice is another perhaps not less fatal—that of using spirituous tinctures and alcoholic bitters for the cure of dyspepsia and its attendant evils. The unhappy victim is thus led on blindfold to the very brink of destruction. He does not know that, while he is thus endeavoring to relieve his dyspeptic evils, he is forming a habit, and creating a taste which will never desert him till they have wrought his ruin, and brought him to an early and untimely grave. Females are particularly exposed in this way to form intemperate habits, and I am inclined to believe that more

female drunkards are made by this means than by any other. They are peculiarly subject to dyspeptic and nervous diseases from want of exercise in the open air, from keeping late hours, and other causes: and for the relief of these distressing affections they are very apt to resort to tinctures, stomachic elixirs, &c. The desire and taste for alcoholic stimulants may thus be formed and strengthened without the patient being aware of the danger to which she is exposed. She is only taking medicine, and this too perhaps by the advice of her physician! Her conscience is pacified, and she does not know, for she does not reflect, that she is drinking ardent spirit—the bare idea of which would probably fill her with apprehension and alarm. Every medical man assumes a fearful responsibility whenever he advises a patient to take *habitually* an article which can by possibility lead to habits of intemperance. Alcoholic bitters are never indispensable—seldom desirable, and if we can get along without them, why should we ever induce our patients to run such tremendous risks in taking them?

Idleness is not unfrequently a remote cause of intemperance. We seem so constituted by nature that excitement of some kind is essential to our happiness; and if this stimulus be not furnished by intellectual or coporeal labor it will be sought in other ways, and hence the idle man is peculiarly exposed to the formation of habits of dissipation and inebriety.

While upon this subject we cannot forbear referring to the lamentable practice, formerly almost universal, and still by far too common, of farmers regularly furnishing ardent spirits to the laborers

in their employ. The ration of whiskey, generally to the amount of a pint for each individual, is measured out in the morning with as much punctuality as his meals. If the object particularly in view had been to form drunkards, a more effectual mode than this could hardly have been devised.

It has often been remarked that this destructive vice not unfrequently prevails in particular families, descending from parent to child for several generations, but whether from the force of example or from hereditary predisposition is a disputed point, though both circumstances probably exert some influence.

The stimulus arising from ardent spirits is sometimes resorted to by the timid and feeble minded in order to drown the recollection of misfortune. But no man of energetic character, or lofty intellect, or decided purpose, could ever be so weak and silly as to make use of ardent spirits for such an object. He knows too well the transient nature of the relief afforded, as well as the tremendous evils which so certainly follow in its train, ever to depend upon it to alleviate misfortune, or drive away care. But unfortunately there are men, deficient in moral firmness and intellectual vigor, upon whom misfortunes in business, domestic disquietudes, or the disappointments of ambition, press with so heavy a weight as to induce them to frequent the bar-room and the tipling shop for solace and relief. But alas! what wretched consolation for an afflicted mind! Nothing is gained by it but temporary relief, and for this are sacrificed for ever, health, reputation, happiness, and all that our nature holds most dear.

CHAPTER XII.

Method of Curing the Habit of Drunkenness.

To break the chain of habit which binds the drunkard to his bottle, like Prometheus to the rock, is a labor of great, nay, of almost insurmountable difficulty.

There is not perhaps a single habit within the whole circle of human conduct which exerts so powerful, we might say so uncontrollable an influence on the mind as that of intemperance—and not one from which deliverance is so seldom obtained. So complete and absorbing is the drunkard's devotion to his cups—so bitter and overwhelming is his wretchedness when deprived of this stimulus—that he will sacrifice health, reputation, friends, family, every thing, to gratify this all-powerful appetite. In contending with the habit of intemperance we have a double war to wage, for not only is the body enslaved by this vice, but the mind also is carried captive and debased; and thus those moral considerations, by which we must chiefly expect to operate upon the inebriate, lose much, and sometimes all of their influence.

But although the difficulty of breaking up this disasterous fascination by which the drunkard is

hurried onward in his course is very great, yet we fortunately have learned from experience that it is not always insuperable.

The question has frequently been asked in relation to this subject, whether it is better that the intemperate should relinquish the inebriating cup wholly at once or by degrees? It is contended on the one hand that where the habit of drinking is firmly fixed, and has been of long continuance, that there will be no little danger to the health, and perhaps the life of the individual if the practice be totally and suddenly abandoned—and that the agony and suffering are so great on this plan that we have little reason to suppose that men can be brought voluntarily to undergo it. On the other side it is asserted that all experience is in favor of immediate and total abstinence—that there is no danger to life or health if proper precaution be observed—that although the suffering from so entire a change in the habits may be great, yet it is not greater on the whole than from the gradual plan—and that we have good reason for believing from all past experience that it is vastly more effectual, and that fewer relapses into intemperate habits occur, where immediate and total, than where gradual abstinence is attempted.*

* Sir Anthony Carlisle, whose opinions deservedly carry with them great weight, makes the following observations upon this subject:—'Long-continued experience in my profession has convinced me of the safety of a sudden transition from the daily employment of a strong drink to a water diet, and that in the most inveterate habits. This method is the most sure, in as far as it removes the hankering after the accustomed beverage, which sipping and tasting, or even seeing it, encourages. It is the best way,

No one, in my opinion, can take an extensive view of the course of events in this country for the last few years in relation to intemperance without being convinced that total and immediate abstinence from every species of alcoholic stimulants is a course perfectly safe as it regards the health of the individual, and the only one which can be depended on as ensuring a radical cure of the drinking mania. The adamantine chain of habit is thus effectually sundered, and for ever too —but if from an apprehension of its effects upon the corporeal powers, the wretched drunkard is allowed to take a little of the bewitching draught, it will still exercise its magic influence over him, and the power of the habit will be as far as ever from being broken. The best way to unloose the gordian knot which binds us to this pernicious practice is boldly to cut it asunder.

The apprehension so frequently expressed that the emaciated and broken down frame of the drunkard will sink, if the stimulus so long and so freely applied be withdrawn, is proved by every day's experience and observation to be utterly groundless. It is a well known fact, that in our public hospitals men of the most intemperate habits are often admitted, and immediately deprived of the use of ardent spirits; and yet this course, so far from being injurious, is decidedly beneficial. If this plea will answer for the debilitated and diseased inmates of a hospital, we might argue, *a fortiori*, that it would do still better for

because I am assured from extensive observation that whenever fermented liquors decidedly produce or keep up disorder, every small quantity of them is poisonous.'

those who are in comparative health. 'In a public hospital,' remarks a distinguished British surgeon, 'to which I have been one of the surgeons for twenty years, it has been my practice in all cases of desperate operations and dangerous accidents to debar the patient instantly from all strong liquors, although very often the previous habits of such unhappy persons were most notoriously intemperate, and I am assured of the advantage of such practice, and in general of the consequent great benefit to their constitutions.'

Dr. Cheyne expresses the same opinion. He remarks—'Nothing is more ridiculous than the common plea for continuing on drinking large quantities of spirituous liquors, viz.: because they had been accustomed so to do, and they think it dangerous to leave off all of a sudden. It were as reasonable for him that is fallen into the fire or water to lie there, because of the danger of removing him suddenly.' Our own Rush also gives the weight of his powerful testimony in favor of this course. In order to effect a reformation in drunkards he remarks, 'they must leave off *suddenly* and *entirely*.' 'No man was ever *gradually* reformed from drinking spirits.' 'He must not only avoid tasting, but even smelling them, until long habits of abstinence have subdued his affection for them.'

There is no doubt that this course will often be productive of great bodily and mental suffering, and that no slight degree of moral firmness is requisite to enable the individual to endure the depression and wretchedness consequent on such a sacrifice. But fortunately their sufferings are

of short duration, are constantly becoming less intense, and will soon cease entirely. It would probably be advisable in these cases to make use of some stimulating articles of diet for a few days in the place of the liquid fire which the patient has been in the habit of employing, and which relieve and obviate the sense of sinking that so much oppresses him. Black, and cayenne pepper, ginger, infusion of camomile flowers, and other tonic bitters, preparations of steel, &c., may be advantageously employed for this purpose. These remedial agents, when judiciously directed, communicate an agreeable glow and excitement to the stomach, increase the appetite, and tend to lessen and alleviate those nervous feelings which so greatly harass the reforming drunkard. Congress, and other mineral waters may also be used for the same purpose, and with a similar effect. In those cases where great restlessness and depression occur, with sleepless nights, a little opium may with propriety be resorted to.

Of course, in all that has been said in relation to the cure of the habit of drunkenness, it is taken for granted that the consent and concurrence of the individual concerned have been obtained. Without this probably a permanent reformation has seldom if ever taken place. To deprive the drunkard by force of the intoxicating cup would, in all probability, only irritate him, and increase his desire to obtain it.* It has been sometimes re-

* The following occurrence illustrates the overpowering attachment of the drunkard to his drink :—'A few years ago a tipler was put into an almshouse in a popu-

commended however when the conduct of the drunkard could be legally controlled, as in the case of minors, to confine him for a length of time, or to send him to sea, with strict injunctions to those who have charge of him, not to allow him any ardent spirits. Such a course might perhaps be advisable where the restriction could be kept up for a length of time, and where all other means had failed; and at any rate it would be worth the trial as a last resort. It is possible that the morbid association might be thus controlled, and the memory might cease to recur to scenes of debauchery and dissipation; and the drunkard forget the spell which bound him to his cups. We have no reason to suppose, however, either from the nature of the case or from past experience, that a restriction or confinement of a few days would be of any advantage. Generally speaking, we can expect to accomplish little with the drunkard except from moral considerations. But, alas! how often are even the most powerful of these insufficient to restrain him in his downward career! When the reflection of his own degradation and

lous town of Massachusetts. Within a few days he had devised various expedients to procure rum, but failed. At length however he hit upon one which proved successful. He went into the wood-yard of the establishment, placed his hand upon a block, and with an axe in the other, struck it off at a single blow. With the stump raised and streaming he ran into the house, crying, 'get some rum, get some rum, my hand is off.' In the confusion and bustle of the occasion a bowl of rum was brought, into which he plunged the bleeding member of his body, then raising the bowl to his mouth, drank freely, and exultingly exclaimed, 'now I am satisfied.'

impending ruin in time and eternity—of the agonizing wretchedness of wife and children, and friends—of the sacrifice of property, happiness, and reputation: if all these, and a thousand other evils, when kindly, and powerfully, and earnestly presented to his consideration by the benevolence of friendship, all fail, we need have little hope of any amelioration

Various articles of the materia medica have, at different times, been recommended to be taken internally, mixed with the drunkard's drink, for the purpose of restraining the absorbing desire of the inebriate for ardent spirits, and of breaking up the morbid habit by which he has been so long controlled. These articles have usually been of a nauseous and disagreeable character, and their reputation and success have been in pretty exact proportion to the preponderance of this quality. Chamber's medicine, which obtained no little repute in this country a few years since, acted entirely on this principle, and indeed was no doubt composed principally of tartar emetic, which produced almost immediately on being taken nausea and vomiting. Possibly some intemperate persons might be cured of the desire for ardent spirits by the sickening effect of such articles mixed with their drink. But instances of perfect reformation by such means are certainly very rare, even when the drunkard could be induced to adopt them, and when he could not, the attempt of course was useless. A similar plan however had been recommended and tried by Dr. Rush, and, as he thinks, with occasional success. Some caution is requisite in the administration of so violent a remedy

as tartarized antimony to constitutions broken and debilitated by long-continued debauchery; and it is said that some fatal cases occurred from the indiscriminate employment of Chambers' medicine.

Some men of weak minds and nervous temperament have become addicted to habits of intemperance on account of domestic broils which have driven them to the tavern and the dram shop for that social enjoyment which the capricious temper of a wife has denied them at their own fireside. In cases of this description we can expect to accomplish but little in the way of reformation, unless the cause of the difficulty be previously obviated.

A feeling of opposition and perverseness which generally exists to a powerful degree in the drunkard will sometimes bring about a change of habits when every other plan which could be imagined had been tried without any amelioration.

An eminent English physician was once consulted by a gentleman whose wife was grossly addicted to this propensity. They sat down to deliberate on the best means of inducing a reformation, and the doctor listened with much patience to all the plans which the husband had adopted for accomplishing this desirable object. So many schemes had been tried, and so many expedients attempted in vain, that the physician declared that it was useless to attempt any thing farther, except to place a hogshead of brandy before her and let her drink till it proved fatal! Fortunately for all concerned, the lady suspecting the object of the consultation, had concealed herself in the adjoin-

ing room, and overheard every word. Her pride was roused, and her indignation excited to the highest pitch; and from that moment she renounced for ever the use of ardent spirits!

Sometimes a severe attack of sickness, which may deprive the drunkard for weeks of his accustomed potation, will so far break in upon the habit he had previously formed as to enable him to relinquish it with comparative ease. Disease may thus become the greatest of blessings.

A change of air, of climate, of occupation, and mode of life will greatly assist him, who is sincerely anxious to subdue this debasing appetite, as it will present him new objects of interest to excite his attention, and arouse the dormant and enervated energies of his moral character.

Unfortunately however for the interests of humanity and the happiness of mankind, all these means are but too often thrown away on the confirmed drunkard. Of him there is but little hope —his march is onward—deaf to entreaty—unawed by danger—unappalled by the devastation around him—he rushes forward—he still drinks, and drinks, until, on the altar of intemperance,

> ———'he has sacrificed ease, peace,
> Truth, faith, integrity : good conscience, friends,
> Love, charity, benevolence, and all
> The sweet and tender sympathies of life :
> And to complete the horrid, murderous rite,
> And signalize his folly, offers up
> His soul and an eternity of bliss,
> To gain him—what ? an hour of dreaming joy,
> A feverish hour that hastens to be done,
> And leaves him in the bitterness of woe.'

CHAPTER XIII.

Substitutes for Ardent Spirits in the Practice of Medicine.

It cannot have escaped the observation of any reflecting man that the medical use of ardent spirits has frequently been the immediate cause of the formation of intemperate habits. Many an individual, who had little constitutional fondness for the inebriating draught, and whose habits were such as seemed peculiarly fitted to preserve him from this fell destroyer, has made wreck of every earthly prospect by being induced to resort to the use of ardent spirits for the relief of perhaps some trivial complaint. The talented, the great, and the learned, as well as the degraded, the humble, and the ignorant, have thus fallen beneath the withering touch of this soul-destroying Moloch. In more than one instance have I seen the able and hitherto faithful minister of the gospel laboring under a slight attack of dyspepsia, and, by the advice of his medical attendant, drinking daily for weeks together a glass of brandy and water until he has gradually and unconsciously formed a taste, and acquired a relish for the fatal liquor, which has increased in strength, and acquired a firmer and firmer grasp upon the enervated mind until it has obtained complete mastery

—and the wretched victim has made shipwreck of conscience, reputation, friends, eternity.

There are various other ways also in which the medical use of ardent spirits may prove the forerunner of drunkenness. It is a very common practice in some parts of our country for persons to resort to bitter herbs, as wormwood, gentian, chamomile, &c., steeped in ardent spirits, for the relief of a slight degree of dyspepsia, to increase their strength, and give them an appetite. The whole family partake of this bottle, and resort is regularly had to it three or four times a day. I defy any one to point out a mode more exactly fitted to convert the most sober and temperate family in the world into sots than this. The regular, habitual, daily use of brandy! This is precisely the way in which all drunkards have been made. They always drink temperately before they drink intemperately. True, they are all this while taking bitters, and that too perhaps by the advice of their physician. But does that alter the case? Are they not also drinking ardent spirits? And will they not, in all probability, persevere in their downward career till ruin stares them in the face? It is self-evident that such a course is not one whit safer, so far as the morals of the individual are concerned, than if so much undiluted brandy had been taken.

Is it not then the solemn duty of every physician, as well of every christian, and every patriot, to do all in his power to dispense with an article the use of which is surrounded and accompanied by such tremendous dangers? Grant that in most cases there is little risk of this becoming so fixed

a habit that the patient cannot at any moment lay it aside—grant that most men have sufficient firmness of mind, and fixedness of purpose to resist, and sunder at their pleasure, the iron chain of habit—yet, if only one individual in an age were sacrificed on the altar of intemperance by the medicinal use of ardent spirits, would not this of itself be a sufficient reason for proscribing and banishing it for ever?

But it will be asked, how is this risk to be avoided? If ardent spirits are necessary for the cure of disease, and the preservation of health, shall we not use them? In reply I have no hesitation in asserting that there is no state of the system, however exhausted or enfeebled—no species of malady, however obstinate or unyielding—no case of disease, however dangerous or appalling, in which ardent spirit is indispensably necessary, and in which a substitute, perfectly equal to all the exigences of the case, cannot easily be found.*

And I think that every medical man, who will carefully review the whole ground, will come to the same conclusion.

* It is gratifying to see Professor Chapman of Philadelphia adding the weight of his great influence, in relation to this subject, to the cause of sound morals and true science. In his able work on the materia medica he remarks :—

'It is the sacred duty of every one exercising the profession of medicine to unite with the moralist, the divine, and the economist, in discouraging the consumption of these baneful articles, and as the first step in the scheme of reformation to discountenance the popular notion of their remedial efficacy.'

That stimulant articles are desirable, and even necessary in the practice of medicine, no one can doubt. There are several states of the system in which this class of remedial agents is indispensable. Whenever the system has been exhausted by long-continued disease, or any other cause, and where no fever exists, tonics and bitters, of various kinds, will do much to restore the lost energy of the stomach, and to bring back the wonted vigor of the constitution.

Among these stimulants and tonics ardent spirits have long held a high rank, and have frequently been resorted to, especially by the vulgar.

It is admitted that there are a few extreme cases in which ardent spirits are temporarily beneficial: what is contended for is, that there is no case in which they are *indispensable*, and in which an *adequate substitute* cannot readily be found.

The following are the principal cases where ardent spirits are supposed to be beneficial, or necessary:—

1. They are used when, from any cause, dyspepsia has prevailed, and the tone of the stomach has been impaired. This is a fruitful source of error to the practitioner, and of disease, misery, and ruin to the patient. They are employed in this instance chiefly in combination with bitters.

2. They are directed in low typhoid states of the system where the strength has been much exhausted—and powerful diffusible stimuli are required to keep alive the vital spark.

3. Ardent spirits are occasionally prescribed as an external astringent in cases of hemorrhage.

4. Alcohol, in some form or other, is frequently

given to infants, to remove flatulency, relieve pain, make them sleep, &c.

5. In cases of sudden emergency in which the vital powers seem extinct, and the patient is in immediate danger of death, as when large quantities of cold water have been drunk.

6. To remedy the disagreeable taste and the supposed injurious qualities of bad or impure water, particularly in cities, and on ship-board.

7. As an external application when the surface requires vesication or stimulation.

8. To enable laboring men the better to sustain the extremes of hot and cold weather, and the vicissitudes to which they are exposed in their arduous avocations.

1. *In Dyspepsia.*

There is perhaps scarcely one disease in the treatment of which the patient more frequently commits mistakes than in this. He feels languid and wretched—his food is badly digested—flatulency continually harasses him—an uneasy indescribable sensation of oppression in the epigastric region, is a constant companion—and to relieve these disagreeable feelings he has been taught by those around him to resort to the stimulus of bitters and ardent spirits. He perhaps receives temporary relief, and he is encouraged to proceed—another and another, and another dose is taken, but the relief becomes more and more transient; and in order to obtain even this he is compelled to increase his libations. He will however very soon

discover to his sorrow that his disease, instead of being cured, is continually becoming worse. In short, he has mistaken his remedy—and this will invariably be the result with every one who endeavors to break up such a disease by such means.

Dyspepsia requires a very different treatment. Where any thing of a stimulant or tonic character is required, the usual bitters, as Peruvian bark,* camomile flowers, columba, quassia, gentian, &c., or the preparations of steel will be amply sufficient. There cannot be the least doubt that great, and sometimes essential injury has been inflicted on the unhappy dyspeptic by recommending alcohol

* The sulphate of quinine is a most excellent article in cases of languor, debility, and loss of appetite, and might be employed advantageously much more frequently than it is. There is no bitter, I am inclined to think, in the materia medica, whose effects are so prompt and decided as this—and which gives such immediate and complete relief in those cases of simple debility which occur so frequently during our warm summers—and more especially among men of sedentary habits—and females of delicate constitution. I have repeatedly seen ladies, whose strength has been prostrated, and their lives rendered wretched by the languor consequent upon the oppressive warmth of the summer season, restored to elasticity of spirits and perfect health, by a few doses of this article repeated for three or four days.

And I have also been particularly gratified in being able occasionally to prevail upon the laboring man to leave off his alcoholic bitters and resort to this pleasant and efficient stimulant, and always without a single exception has he declared himself pleased with the change. He would say that the quinine was much more efficient in increasing his appetite, and dispelling that languor that was so oppressive to his feelings—while it was never followed by the headache and subsequent depression which are such common attendants on the use of ardent spirits.

to strengthen his digestive powers, and increase his appetite. So delicate an organ as the stomach cannot with safety be loaded with so powerful a stimulus, and especially when in a state of subacute inflammation, as is frequently the case in dyspepsia. Independantly therefore of the imminent danger of the patient's becoming addicted to habits of intemperance, the advice too frequently given, I am afraid even by physicians, to drink brandy and water cannot be too strongly deprecated on account of its immediate effects on the system itself. Where any thing in this disease of a more stimulant nature than tonics and bitters is required, good wine is much preferable to ardent spirits, and no doubt even this is prescribed much more frequently than is necessary.

2. *In low Typhoid states of the System.*

Where the strength has been exhausted, and a low typhoid state has come on, after a long-continued fever, it is a very general impression among the profession that a stimulus of a different nature from the ordinary tonics and bitters is required to quiet the irritable and frequent pulse, to clear the black and coated tongue, and to resuscitate the exhausted energy of the body. In this peculiar state most medical men have been in the habit of using alcohol very freely in the form of wine or brandy. But, surely, when we consider the great number, and vast variety of stimulants furnished by the materia medica, we can hardly believe that amongst all these it would not be possible to select

an article or articles which would be proper for almost any form of this disease, and every idiosyncrasy of constitution. When we consider the great and varied powers of the Peruvian bark, ammonia, camphor, cayenne pepper, &c. &c., can we doubt that resort need never be had to ardent spirits where these can be obtained? But although perhaps there are cases where wine cannot readily be dispensed with, yet I have no hesitation in asserting that there never was an instance where there was the least necessity for using ardent spirits in any form or shape whatever. Indeed, the only, or the principal plea for the employment of brandy or rum in these cases is, that wine sometimes disagrees with the stomach by turning acid. It is rather a favorite notion with some practitioners that brandy is less apt to disagree in this respect than wine, but I must say that I have never found the least difficulty where the wine was of a good quality, and the proper kind had been selected. Sometimes one kind of wine will suit better than another, and some little judgment is required to select that which is best adapted to the peculiarities of the constitution and the disease. Should there however be a case in which wine could not be taken, good porter or ale could still be resorted to, and would be more suitable and advantageous than ardent spirits.

I have no hesitation then in repeating that there are no cases of typhoid fever where ardent spirits are ever desirable, and very few if any in which wine is absolutely indispensable.

3. *As an External Application in Cases of Hemorrhage.*

It would be absurd to attempt a labored denial of the importance of ardent spirits in this particular case, as probably not one sober medical man in a hundred would ever think of resorting to them for any such purpose.

4. *Alcohol is frequently given, in some form or other, to infants to remove flatulency, relieve pain, make them sleep, &c.*

This idea has already been discussed in a previous part of our work (chapter XI.), and what was there remarked need not be repeated. I will only add, that there is not probably a single imaginable state of the infant's system in which other articles could not be used with more advantage for these purposes than ardent spirits.

5. *In cases of sudden emergency in which the vital powers seem extinct, and the patient is in immediate danger of death—as when large quantities of cold water have been drunk.*

Where accidents of this kind have taken place nothing is more common than to see both practitioner and the standers by pouring down brandy or gin into the stomach of the unhappy victim—not once reflecting that in all probability he has

already half a pint of alcohol in his system, and without which his alarming situation never would have occurred. Nothing is more certain, than that in nine cases out of ten, where injury has been suffered from drinking cold water in warm weather, it takes place in persons of intemperate habits, the powers of whose system have been prostrated by previous indulgence, and which have not sufficient energy to bear the sudden introduction of a large quantity of cold water. The drinking of cold water by persons whose habits have been previously good, and whose health is perfect, is seldom, if ever, attended by fatal consequences, and indeed generally by nothing more than slight and transient pain.

Is it not absurd then for us to prescribe, as a remedy, an additional quantity of the very article which has caused all the mischief? Although no doubt stimulants are the proper remedies in cases of this kind, yet there can be as little doubt that there are other articles much more efficacious and suitable than ardent spirits. Ammonia, cayenne pepper, camphor, laudanum, together with external applications of mustard, cantharides, turpentine, heat, friction—all can be employed to much greater advantage than alcohol in any form, and will be amply sufficient for every possible emergency.

6. *To remedy the disagreeable taste and the supposed injurious qualities of bad or impure water, particularly in cities, and on ship-board.*

Although this plea for the use of ardent spirits

cannot be sustained by a single rational argument, yet I have no doubt it has frequently been the means of inducing intemperate habits. It is a very common practice in our large cities, and perhaps still more common on board our ships, to plead this excuse in justification of the daily and habitual use of alcoholic liquors. But a moments consideration would be sufficient to convince any reflecting man that such a course is only making the evil greater. If the water be unwholesome, the mixture with it of brandy, which is itself injurious, cannot render it otherwise; and if the object be to disguise its disagreeable taste, there is a great variety of other articles which could be employed quite as effectually for this purpose, and which are free from every objection, either on the score of morals or of health.

7. There are so many other things (as tincture of cantharides, spirits of turpentine, mustard, &c. &c.) which can be used in this case, that not a word need be wasted on the subject.

8. *The vulgar opinion, or rather what was the vulgar opinion a few years since, that the laboring man requires the stimulation of ardent spirits to enable him to perform his arduous duties, and to defend him against the vicissitudes of our changeable climate, is wholly unfounded.*

It would be easy to prove this from a philosophical consideration of this subject,* but a still

* The reader will find some reflections upon this question in chapter X.

more infallible guide (experience) puts it beyond all controversy. Since the formation of temperance societies it has been found by the experience of thousands, ascertained in every possible way too, that those laboring men who abstain entirely from the use of ardent spirits, can perform more labor, and are in less danger from the vicissitudes of our climate than those who use them habitually. Within the last ten years, thousands of farms have been cultivated, hundreds of ships have been navigated, and every variety of manufacture carried on without a drop of ardent spirits—and the unanimous and decided testimony of the individuals concerned has been, not only that money has been saved, and morals promoted, but that lives have been preserved, and health benefited by this abstemious course.

On a dispassionate review of this whole subject then, I think it will be admitted by every candid and reflecting medical man, that the use of ardent spirits in the practice of medicine is never indispensable, and seldom, if ever, even useful; and that in this latter case there is a great variety of remedies which are amply sufficient as substitutes. If this be the case, what is the duty of every physician in relation to this article, which has spread such misery, desolation, and ruin throughout this country and the world? Shall not physicians who have always been pre-eminent in the labors of love and the exertions of philanthropy—shall not they do something for the promotion of the temperance cause—that greatest and best of the benevolent enterprizes of this benevolent age?

And in what way can this be done so effectu-

ally as by discouraging the medical use of ardent spirits? No one can doubt that such use has made many a drunkard, and filled many a drunkard's grave: and shall we not then relinquish its employment, and resort to other articles equally efficacious, and at the same time perfectly safe? The apathy which has so long been felt by the medical profession in relation to this important subject—thanks to the Temperance Societies and the reforming spirit of the age—is beginning to disappear, and more enlarged views of professional duty and professional responsibility are beginning to be felt.

Already has the seal of reprobation been put on the medicinal use of ardent spirits by numbers of the most eminent of the medical faculty; and may we not hope that this spirit will spread yet more widely and extensively until every physician shall be brought under its influence, and shall unite with the patriot and the christian in the expulsion from its last strong hold of this most destructive of human vices, and direst of human foes?

APPENDIX.

A TABLE OF THE PRINCIPAL CASES OF SPONTANEOUS COMBUSTION FROM THE DICTIONAIRE DE MEDECINE.

	Works in which they are reported.	By whom.	Time.	Age.	Combustion Complete.	Immediate Cause.	Habit of Life.	Situation of the Remains.
1	Actes de Copenhague.	Jacobœus.	1692		Except a part of the skull and the last joints of the fingers.		Abuse of spirits for three years.	Upon a chair.
2	Anual Register.	Blanchinede Verone.	1763	62	Except the skull, a part of the face, and three fingers.	A lamp.	Frequent fomentations of camphorated spirits.	Upon the floor.
3	Anual Register.	Wilmer.		50	Except the thigh and one leg.	A light upon a chair near the bed.	Having drunk for a length of time a pint of rum daily.	Upon the floor near the bed.
4	Encyc. Method.			50	Except a few bones.		Habitually drunken.	
5	Acta Medica.				Except the skull and fingers.		She drank brandy as her only drink.	
6	Memoirs upon spontaneous combus.	Lecat.	1744	60	Except a part of the head and limbs.	A pipe which she was smoking.	A drunkard.	Near the chimney
7	Ibid.	Ibid.	1745		Ibid.	A fire.	Habitually drunken.	Upon the hearth.
8	Ibid.	Ibid.	1749	80	Except a black skeleton.	Fire of the hearth.	Drinking brandy only for many years.	Sitting upon a chair before the fire.
9	Jour. de Medecine.		1779		Except a few bones, a hand, and a foot.	A foot stove under her feet.	A drunkard.	
10	Ibid.		1782	60	Ibid.	A fire of the hearth.	Ibid.	Upon the hearth.
11	Revue Medicale.	Julia Fontenelle.	1820	90	Except the skull and a portion of skin.	A candle.	Abuse of wine and eau de Cologne.	In bed.
12	Ibid.	Ibid.	1830	66	Except the right leg.	Ibid.	Ibid.	In the same bed; these two burnt together.
13		Gen. Wm. Kepland.		very old.	Except a few parts of the body.	A lighted pipe.		Upon the floor.
14	Journal de Florence.	Joseph Battaylia.	1786		The skin of the right arm, and of the right thigh were burnt.	A lamp.		Upon the floor; he lived four days.
15	Revue Medicale.	Robertson.	1799		Combustion incomplete.		Abuse of brandy.	Upon a bench.
16	Ibid.	M. Marchand.			Hand and thigh only burnt.			Cured.
17	Jour. hosp. Hamb.			17	One finger of the right hand burnt.	A candle.		Cured.
18		Alph. Devengee.	1829	51	The muscles of the trunk, thighs, superior extremities, burnt.	A foot stove.	Abuse of spirits.	Upon a chair.
19	Dic. de Med.				Combustion almost general.	A foot stove.	Ibid.	Upon the floor.

All of these were females except Nos. 14, 15, 16.