Bathing and the bath : simple and medicated : its history, effect and mode of application, with a particular description of the patent "toilet bath" / by T.S. Lambert.

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AND

THE BATH,

SIMPLE AND MEDICATED: ITS HISTORY, EFFECT AND MODE OF APPLICATION, WITH A PARTICULAR DESCRIPTION OF THE PATENT

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TO

ALL LOVERS

OF

CLEANLINESS,

THIS WORK IS

RESPECTFULLY INSCRIBED.

PREFACE.

THE object in writing the following pages, is almost self-evident. It is one of the most convenient means I can take to call the attention of physicians, and the public generally to an invention which has been called very valuable by those who have seen and used it; a Bathing Apparatus. Its patrons have demanded that something should accompany it to serve as a gulde in its application; and I did not feel at liberty to deny their request; nor did the public weal seem less to require that something concise but comprehensive should be thrown out to direct in the management of the public and the private bath; and as my attention had been much given to the subject of baths, several of my medical friends insisted, that a book should be adapted to the public want. I have therefore made the attempt that necessity required of me. What has been written professes but little originality; indeed, how could it, when there is scarcely a medical writer whom I could not quote as strongly vindicating the use of the bath. On the other hand I have endeavored to present in a condensed form all the ideas I could find, by a research through all the authors that have touched upon the subject, or that I have gathered in conversation with medical men, that would as I thought be either interesting or useful to the reader; hoping, however, that though a small book, it might not be unworthy a place in the library of the scientific professional man, I have been careful not to obtain any ideas except from the most undoubted authority. Nor has anything been accepted upon any authority however great, until it was tested by experience. This at first thought may seem like fulsome egotism, but as I hold myself responsible for what I have written, I could not conscientiously do otherwise. What is within written makes as little pretension to rhetorical beauty, or literary excellence. It has been composed when the cares of business urgently called for my attention, and I have therefore sometimes failed, perhaps, to present the subject with that clearness at which I chiefly aimed, but I have endeavored, nevertheless, to let no point of importance slip without the most thorough examination of facts and authors; my object has been rather to convey correct ideas, than to avoid an awkward expression. Utility has been my object in writing; utility should be the object in reading.

From medical men though meeting them as strangers, and much my superiors, and elders, I have received too many evidences of gratuitous good will, to distrust their kindness. The public has always been kinder to me than I could have expected, and if I have failed to accomplish what the reader would have desired, I will trust to the indulgence which has before been granted me, to excuse the faults of which complaint may be made.

TROY HOUSE, *Troy*, 1845.

CHAPTER I.

"And the bookes of learnede men doth moreover tell us that the antient Greek dyd bathe his bodie with the steams of water, which he made to boyl; and in like manner dyd the Roman, who dyd also trim his bagnios with gold and silver, and costlie ornaments."—*Old Tract.*

"He that hath been in Italie, Turkey, and Germany, and hath seen how costly and well favouredly the bathes are trimmed and appointed in divers places there, would be ashamed that any strangers should look upon our bathes; for he would surely accuse us Saxons of ignorance, because we can trim our bathes no better; of unkindness, because we doe so lightly regard so excellent gifts; of grossnesse, because we are so uncleanly of body as not to use them."—*Old Tract.*

When men first began to bathe, we cannot now ascertain. Tradition speaks of bathing as a common practice long before the time of authentic annals. Some have supposed, that when man came, undepraved, from the hands of his maker, a natural instinct made him seek out the cool banks of the river, and the deep shades that hung over the lake, that there he might indulge in one of the most healthful luxuries of life. If this were so, his descendants have most sadly fallen away from the intentions of Nature and entirely eradicated one of the most important impulses that acted upon the first of men.

Be this as it may, the universality of the practice of bathing; its frequent mention in the earliest histories of all nations proves that by some means men soon learned to appreciate the bath, as a comfort, a protection from disease, and as one of the most efficacious and safe means they could use in alleviating and curing it. And that the opinions of our ancestors were well founded, accordant with the unchanging laws of Nature, is established by the experience

of the present and all past ages, Science has given her consent and asserts that they will always be correct while time and man shall last.

Every other means for improving health aud lengthening life; every other remedy for disease has been disputed at one time or another, by this school or that school, by the learned or by the unlearned either justly or unjustly. But all of every sect and name and from all time have given their unwavering testimony in favor of bathing. Theory and experience equally coincide in urging its importance. In different parts of the world and at different times, it has been, however, and is now differently valued. By the Lawgiver of the Jews it was especially esteemed. And it is to be lamented that the instructions he gave that people in regard to purification are not considered as canonical at the present day. It is surprising that they are not; since they are so often enjoined and so many examples given of their efficacy. On many occasions the bath is mentioned in the Bible as a sure remedy for disease. Naaman was to be cured of his loathsome complaint by bathing seven times in the river Jordan. "It is probable that the famous pool of Bethesda, in which so many lame, sick and infirm people were healed, was simply a natural warm bath." (Ed. Encyclopœdia.) Among the Greeks the bath was in the highest repute, by them it was thought not so much a luxury as a necessary for life. Pages might be filled with quotations from Homer, Moschus, Theocritus and others; especially from Homer, who continually restores his heroes from the fatigue of travel and battle, by the wholesome indulgence of a bath: As Ulysses at the court of Aleinous,

> "And in the bath prepared my limbs I lave;
> Reviving sweets repair the mind's decay,
> And take the painful sense of toil away,"

The splendid monuments of ancient baths that yet remain at Rome, are abundant testimony of the high estimation in which they were held by the Romans.

The extent and magnificence of the Roman baths almost exceeds belief: did not our own times bear witness to the truth of what is written, we should be inclined to doubt the veracity of authors.

"Eight hundred and fifty public baths were in daily operation in Rome." (Sextus Rufus.) "With the ancient Romans the baths formed the most important item in the economy of their lives; to them it was an habitual and indispensible practice; they considered the bath as essential to their comfort and health, as we in our degeneracy regard a change of linen, and that this practice exercised a sanative influence on the people is beyond all question; nor can better proof be adduced in its support than the fact, that in ancient Rome, during a period of certainly not less than five hundred years, no such profession existed as a physician, or any class of persons practising the curative art. The inhabitants of Rome could dispense with physicians, by a most simple practice, the constant and habitual use of the bath. And we have tolerable evidence, that it was an efficient substitute for the doctor, in the energy of the Roman character, and the great bodily prowess of the people during this epoch."

In all parts of the world so far as I can learn from travelers, and at all times so far as I can learn from history, among the civilized, and among the barbarous, more attention is and has been paid to bathing than among the English and among the Americans; why it is so I cannot concieve; but it is a fact to be regretted, that we neglect this more than any other people. Within a few years attention has

been so much called to this subject that most persons are awaking to its importance. Yet within a year I have seen those moving in the higher circles in society, who have told me that they had not bathed since they were boys; some twenty, forty or fifty years since. Many an octogenarian sinks into the grave with the dirt of eighty years collected upon his skin.

Bathing was at first doubtless the simplest possible. The river, the lake and the bays of the ocean were resorted to. But as any people became more refined and increased the comforts of life or added to their luxuries, they made improvements in bathing. The warm bath was introduced. This was early in common use and was decidedly advantageous in curing certain complaints.

Bathing in the river invigorates those who are already vigorous, but the warm bath soothes the aching limbs of the weary, opposes the chills of Winter, and tempers the heat of Summer. Homer knew well the virtues of the warm bath, for in the days when he lived and sung and long before, the magnificence of the East had made this luxury a common comfort of life, throughout that part of the world. The Romans, however, were a people who esteemed beyond all others this, what by them was considered necessary of life. And though Roman grandeur is written upon every relic that remains of Roman glory, yet that Rome did tithe the world is by nothing proved more than by her warm baths. Nothing of Rome that time has left undestroyed, is more pregnant with matter for imitation, than the fragments of her venerable baths. The Theomoe or warm baths of Diocletian would contain eighteen thousand bathing at one time, and many of the almost innumerable private baths vied in splendor with the public.

Seneca says "The walls were of Alexandria marble, the veins of which were so disposed as to resemble a regular picture. The basins were set round with most valuable stones from the Grecian Islands. The waters ran through silver pipes, and fell by several descents in beautiful cascades. The floors were inlaid with the most brilliant gems. Statues and collonades graced the whole with beauty and grandeur." Compare this elegance and luxury of the ignorant Roman heathen, with the scanty two quarts of water and the one pinched towel furnished forth to the traveler or visitor in these days of enlightened christianity, in these United States; this very focus of earth's intelligence.

The Mayor of New York with true regard to the public weal, did indeed propose that baths should be prepared and thrown open to all: It was a misfortune that it did not meet with the loudest acclamations of applause. That for once politics were not compelled to give way to the good of the people, I mean the real good of the laboring people; those who above all others require the advantages of bathing; convenient, frequent, and thorough bathing.

In the days of the Roman Republic the public baths were cold. Mecoenas was the first to erect warm baths for the people. By proper regulations these were kept very nice and clean, and in every respect were luxuries rather than comforts. At the present time in this country, France and England, most who use tub bathing prefer warm water to cold, and if the temperature is not too high and the bath is not indulged in too long, it is sometimes preferable.

Shower, Douche and Vapor Bathing, were still greater improvements than the Warm Bath. When they were introduced it is not possible to say.

The Douche Bath is comparatively of very modern ori-

gin. It is merely pouring or spouting water on some part of the body; its effects will depend on the temperature of the water, the quantity and the force with which it acts. It is seldom, if ever used in health, but is very efficacious in certain local diseases; I think it should be tried oftener than it is.

Shower bathing has been used a long time; it may be the ancient Romans took advantage of the cascades spoken of by Seneca; but we cannot learn that they had gained any idea of its great superiority over tub bathing. Indeed the very great repute it now enjoys, seems to be of very recent date, but I think it justly claims the rank it holds and am glad to see that its popularity is increasing both with the physician and the public. It is the easiest and quickest way of bathing, while I esteem it more effectual in gaining the end desired than either of the kinds heretofore mentioned, and when it is regulated as it may be from a mere mist to a profuse fall of water, from the temperature of freezing to as high a degree as can be supported, it may be adapted to the wants of the healthy and strong, or the most feeble invalid.

But of all the means for bathing, the Vapor Bath, properl used, is productive of the best effects. It has been in use a very long time, and very extensively among almost all nations.

Its virtues have been learned and valued by the rudest savages, and among the most prodigal of luxuries it has been esteemed the most agreeable of physical enjoyments: It is said to have been first introduced by a pupil of Æsculapius, who, when his beloved instructor was about to die, besought him to return in a dream and reveal by what means the inferior Gods preserved an immortal youth.

Which Æsculapius promising to seek out, in due time returned answer that it was by the use of Vapor Baths. Whereupon, the pupil applying the same to mortals, secured to them, comparatively, like benefit, obtaining a great extension of life. This refering to divine origin the use of the Vapor Bath, though fabulous, exhibits the high estimation in which it was held by the ancients:—They thinking that nothing so marvelous in its effects could have been produced by the unaided efforts of man. It is really wonderful to see how much of the vigor, activity and elasticity of youth it will give to old age; how smoothly it will wipe away the wrinkles that have actually begun to appear, and spread over the countenance the soft flush and healthful clearness of early years. Even the old man of three score years and ten, his thoughts flow as freely as when in prime of life; decrepit and halting, by the occasional or frequent use of Vapor Baths, he is enabled to lay aside his cane for years yet to come; sprightly and nimble, his life again becomes cheerful; his sun has gone back ten degrees.

Vapor Bathing with us is comparatively uncommon, far too uncommon, since it is a luxury so easily obtained, that more than any other it can be indulged in by all classes of society. Indeed, it is so useful there is not a family throughout our land, which cannot afford to possess, and ought not to possess an apparatus of some kind for giving a Vapor Bath. Not only is it of the greatest service in health, but in many, very many cases of disease, it is the simplest, safest, cheapest, as well as the most efficacious means that can be used to produce a speedy recovery, while in a multitude of other cases, it is the most powerful assistant means that can be applied.

Vapor Bathing in its perfection is found among the Turks. Willis, (Pencillings by the Way,) with his usual vivacity, gives us a lively and faithful description of the modus operandi pursued by the Turks, and beautifully describes the delightful sensations produced by the Vapor Baths.—Sir Sinclair speaking of the same luxury as you obtain it at Constantinople, says :—"If life is nothing but a brief succession of ideas, the rapidity with which these now pass through the mind, would induce one to believe, that in the few short minutes he has spent in the bath he has lived a number of years." Throughout Persia and India, the delights of the Vapor Bath are fully appreciated, though all travelers dwell with greater raptures on the remembrance of the almost Paradise they experienced in the Turkish Vapor Bath. And we may excuse them for a lavish enthusiasm, when describing this luxury; for if there is a time when a man feels as if he could enjoy an eternity of existence, it is when he has just passed from a Vapor Bath taken in its perfection. Every pain is soothed; the cares of the world are in oblivion, the richest fancies, the most delightful ideas float along without the least exertion, and he is entranced with the creations of his own imagination, every sense is quiet with satisfaction, and he blesses God that he has made him a man.

But not only in India, Persia, Egypt, Turkey, and the south of Europe, but throughout the Northern countries, Russia, Norway and Sweden, by all classes the Vapor Bath is greatly esteemed as a luxury, a comfort, or a necessary. Dr. A. B. Granville, describing the Russian Vapor Bath, says, "The physical effects of a bath of this description, are highly favorable to the constitution; judging from my own feelings, I should be inclined to place it above every form

of bath in general use, and I think I am indebted to it for the removal of severe rheumatic pains, which, before, nothing seemed to alleviate. A Russian is apt to think that almost every disease to which he is necessarily liable from the severity of the climate, may be removed by the hot bath, and he flies to it on all occasions when ailing. This general impression on the minds of a whole nation, who are naturally keen observers, had its foundation on long experience, and although, not strictly correct to the full extent of it, is not to be contemptuously rejected as the effects of ignorance." Dr. Clarke, whose works of travel are so well known, says, "Through all Finland, Lapland, Sweden, Norway, and the vast northern empire, there is no hut so destitute as not to possess a family vapor bath, whither all the family resort every Saturday at least, and every day in case of illness." All experience and testimony coinciding to correct the unfavorable idea that exists in the mind of some, that a person is likely in cold weather, to take cold after Vapor Bathing, and therefore, that its use is attended with great hazard; nothing is more erroneous or more prejudicial to our interests.

But I must hasten to lay before the reader, a synopsis of Physiology, that of the skin in particular; for the relations that the skin sustains to the other parts of the body being clearly understood, what I have said, or shall say upon bathing will not appear extravagant, but on the other hand will seem judicious, and worthy of observation. And the directions I shall mention will not appear the offspring of an enthusiastic and prejudiced mind, but as they really are, merely the echoes of Nature's own laws.

CHAPTER II.

THE organs of the system, though intimately connected with each other, may be divided into two general classes; the primary ones, and the secondary.

The first class includes the bones, the ligaments, the muscles, the tendons, the brains, the nerves, the organs of sense, the skin (as a protecting organ), and the minor ajunct of cellular tissue, &c.

By means of these we think, act, obtain knowledge, and communicate it, enjoy our highest pleasures, and suffer the keenest anguish. The secondary organs are superadded to these for the purpose of preserving them in a proper condition for fulfilling their duties; the office of the secondary organs may be learned by ascertaining the wants of the primary.

The first requirement of the primary organs is, that they be preserved at a certain uniform temperature, uninfluenced by the extremes of heat, or cold to which they may be exposed.

The second requirement, results from the effect of exercise and friction. By nervous and muscular exercise decomposition is continually produced; the decomposed substance must be removed, and its place supplied with that which is unimpaired.

We observe, likewise, that it is a law of nature, "the delegate of God," that all the organs arrive at their mature size and strength by a slow growth.

And considering the vicissitudes to which man is exposed in passing from the polar to the equatorial regions, and the sudden changes to which almost every climate is subject, or to which persons subject themselves, in pursuing their avocations; considering the irregular exercise which is taken; and considering how many circumstances act upon the boy before he arrives at manhood; it would seem that an apparatus not a little curious, and most delicately exquisite in its arrangement, would be requisite to adjust the system to the minutest increments of heat, or cold, which would act upon it; to compensate with the nicest accuracy the decomposition of great or little exercise; to mould and remould the organs of infancy constantly increasing their size in such exact proportions to each other, that imperceptibly the child arrives at maturity and still appears the same.

Behold the secondary organs! Their duties are four fold; to eliminate useless substance from the system, to nourish the system, to generate heat in the system, and to lower the temperature of it; and at the same time that they fulfill these duties in respect to the primary organs, they fulfill the same in respect to themselves.

As it respects these duties, the secondary organs may be divided into four classes.

1. The eliminating or excreting organs, which include the kidneys, the liver, the lower portion, perhaps the whole of the intestinal canal, the lungs, the skin, and perhaps the salivary glands and pancreas, the heart and blood-vessels, and the nervous system of organic life.

2. The nutritive or digestive organs, embracing the masticatory organs and salivary glands, the stomach, the second stomach, the liver, the pancreas, the heart and blood-vessels, and the nervous system of organic life.

3. The heating organs, comprehending in part or in whole the digestive organs, the lungs, the skin, the heart and blood-vessels, and the nervous system.

4. The cooling organs, which are composed of the lungs, the skin, the heart and blood-vessels, and the nervous system.

The heart, blood-vessels, and nervous system, seem necessary in every function of the system.

The heart is composed of two hearts in reality; the right, and left. A set of blood-vessels open out of, and into each heart. At the left heart a set of vessels commences by a single trunk which divides and sub-divides in every part of the body, terminating in another set of vessels called the veins, which gradually uniting concenter at the right heart, opening into it.

From this same heart another vessel opens out, which divides and sub-divides in the lungs, terminating in a set of vessels, which lead back, from the lungs to the left heart.

There is one exception to be made, to what I have just stated. The veins which commence in the stomach, second stomach, pancreas and spleen, unite together and pass to the liver dividing and sub-dividing in that organ. By this means, there is a "blood relationship" established between all the abdominal digestive organs; a fact of much importance for us to bear in mind.

The hearts alternately contract and expand, and the vessels once filled with blood, it is driven through its never ceasing round, its task never ended, but always to be done.

Thus, by the contraction of the left heart, the blood is driven out through the arteries to their extremities, where it is received by the veins and returns back to the expanding right heart, which by contracting, communicates to it a new impetus, that propels it through the lungs, when passing

into the lung veins, it finds its way back, to the left heart, again to run its circuit; all which may take place in less time than I have occupied in writing this; for in the healthy state of the system, the blood may be driven through its double circuit of the body and the lungs, in less than a minute; two minutes at most, is all that experiment, or theory will permit us to allow in calculating the entire circuit of blood.

The action of the heart, is greater or less, as the case may be, but it acts impartially towards all parts of the system. But as we shall hereafter see, more blood is at times required in one part, than is required in another. :—By the enlargement of the blood-vessels in any part, an increased flow of blood through it, is obtained; and by their contraction, the flow is diminished. A healthy enlargement of the blood-vessels of any part, may be produced by the application of gentle heat, by exercise of the part, by the temporary application of cold, by friction, and by the application of certain stimulants, as they are called, differing in different cases. An unhealthy enlargement of the blood-vessels, will be produced by disease, and by the improper use of the means before mentioned.

A healthy contraction of the blood-vessels can be produced, by the continued application of cold, by pressure, and by the use of certain medicines used externally or internally; an unhealthy contraction of the blood-vessels may be produced by disease, and by the improper use of cold, &c.

I have said that the arteries open into the veins; this is not strictly correct. Between the arteries and veins, vessels very minute in size exist, forming a very delicate net-work, which opens from the arteries, and into the veins; they are

called the capillary blood-vessels. It is in them that the enlargment of which I have spoken, chiefly takes place.

When the vessels of any part become very much distended, it is said to be congested, or engorged, though there is usually an idea of sluggishness in the circulation of the part intended, also. The office that the heart and blood-vessels fulfill in respect to excretion, is easily understood. In every part of the body, as decomposition takes place, the decomposed substance is received by the veins, and by them conveyed to the heart, and from the heart, it passes through the lungs, is perhaps eliminated by them, if not, it passes back to the heart and is driven out through the arteries, and may find its way immediately to the kidneys, the skin, liver, or some organ by which it will be eliminated, or it may circulate through the system a dozen, fifty, or a hundred times, before it passes through that organ which is adapted to removing it; but sooner or later it will be acted upon and removed. The exception, in respect to the liver, is to be observed, viz.: that the blood from the stomach, second-stomach, &c., as before said, passes directly to the liver and is acted upon, or may be, by that organ, before it returns to the heart. The liver, of course, receives blood by the arteries directly from the heart.

The office of the circulatory system, in regard to nutrition, is to furnish the digestive organs with a sufficient quantity of blood, from which the fluids requisite in digestion may be formed, to receive the digested nutriment and convey it throughout the body, that it may be deposited wherever it is required, to convey certain portions of the decomposed substance through the system, to where, here or there, they may enter into new combinations, and become adapted to the wants of some part of the system.

In respect to the production to the heat, the influence of the heart and blood-vessels is very important. It is their office, as in case of nutrition, to furnish the digestive organs with blood, that the "fuel" portion of our food may be digested, to receive the substance that has been digested and convey it where it may be decomposed, or combined with other substances and produce heat; their contents, for instance, by continually passing through the lungs and skin, may be acted upon by the air, and being united to certain of its constituents produce heat, &c. The fluid blood is admirably adapted to receiving heat from any source, and by its circulation, to disbursing it wherever it is required. If the temperature of any part through which the blood passes is raised from any cause, by this means, it is immediately restored to an equilibrium with the other parts of the system. This is true, however, only with certain limitations.

Nor is the office of these organs less conspicuous in cooling the system. They receive the fluids that we drink, and by distributing them through the skin, cause them to be poured out upon its surface, from which by evaporating, they abstract a corresponding quantity of heat.

A thousand adjunctive functions in addition to those more important ones I have mentioned, are performed through the intervention of the circulatory system.

The nervous system of organic life, consists of a nervous centre, and means of communicating with all parts of the body, and vice versa. Where this nervous centre may be, or whether it may be singular or plural I shall not dispute, as these things are of no practical consequence. It is without doubt plural, but I shall speak of it as single. It is a "resident deity" so to speak, which renders all the involuntary actions of the system harmonious with each other, and

in accordance with the wants of each part and of the whole. It is intimately connected with the brain and nervous system of animal life, affecting it, and being affected by it.

Its office in the function of excretion, is extremely important, for as it is the function of the different excreting organs, to excrete each its own substance, and as there is now much of one kind, and now much of another, to be eliminated, according to what we have been doing, or eating, and according to the health of the system, &c., &c., and as moreover one excreting organ is sometimes diseased, and its office must be fulfilled by another, it is necessary that the action of these organs, be at times very much increased, and at times very much diminished. This can be in part or altogether effected by an enlargement or diminution of the blood-vessels of the organ considered; but there may be besides, a nervous influence exerted directly, causing the excretion to take place more or less rapidly than usual; in either case it is the work of the nervous centre, to which the condition of the system has been made known.

Its office, in respect to nutrition, is to cause an enlargement of the blood-vessels about the digestive organs, at times when food is received, and perhaps to exert a specific influence over the formation of the digestive fluid. If any part of the body, by being exercised, is rapidly decomposing, its wants are appreciated by the nervous system, the blood-vessels of the part are enlarged, and a more copious flow of blood through the part supplies its necessities.

In all these cases the action of the heart will be increased, or diminished as the case may require; the action of the respirating muscles will be controlled and a thousand effects will be dependent upon and produced by a cause no greater than the moving of a finger.

In the function of generating heat, its influences are nearly of the same nature as in case of nutrition, except that they are much more extensive and complicate.

In the function of expelling heat, its duties are exercised in respect to the skin chiefly; enlarging or contracting the vessels of the skin and perhaps exerting a specific influence over the expiration of fluid from the blood. It produces thirst, and at times nearly suspends the action of the kidneys, that the fluids of the system may be removed by the skin.

The organs of excretion, as I have said, include the kidneys, liver, lower portion or the whole of the intestinal canal, the lungs, the skin, and perhaps some other organs of small importance.

The kidneys alone are solely devoted to the task of excretion; the others perform the duty of excretion in the act of executing other functions. Neither two of these organs, in the healthy state of the system, excrete precisely the same substance. Some of the excretions are very dissimilar, as those of the liver and kidneys; some of them are very much alike, as those of the lungs and of the skin; but in case of disease, either of these organs can take upon itself the task of either of the others. The skin, however, is the organ which is usually selected to perform the functions of either of the rest which may be diseased, and it seems to supply their place without producing so immediate or so bad effects upon the system, as when the duties of the skin devolve upon the other excreting organs. The kidneys and liver are very seldom deranged through their own fault; the cause is to be found in the prior disease of some other organ, and most generally in that of the skin, sometimes in that of the lungs, and frequently in that of the intesti-

nal canal, and their diseases are *always* alleviated, in a majority of cases may be cured by paying proper attention to the skin. The derangement of the lungs, is to an equal degree produced through the skin, and is not less beneficially effected by attention to that organ. How much the excretions of the intestinal canal would be influenced by the skin, we may judge from the double connection which exists between these parts, one directly, and the other through the liver indirectly.

The nutritive organs comprehend the masticatory organs, the stomach, second stomach, liver, pancreas, &c. The food is comminuted in the mouth, from whence it is swallowed into the stomach where it is mixed with the gastric juice, dissolved, decomposed and recomposed, and is then passed into the second stomach where it is mixed with the bile and pancreatic juice, undergoes changes, and is separated into two parts, one altogether waste, which passes on; the other is received into the blood-vessels.

The process of digestion depends upon the nature of the food in the first place, its quantity, and how, and when it is eaten; but in the second place, it depends upon a proper supply of gastric juice to the stomach, and of bile, and pancreatic juice to the second stomach. The supply of these fluids depends upon a free circulation of blood in the organ, as an important requisite; but it has before been shown that the veins from the stomach, second stomach, &c, divide, and subdivide in the liver; any congestion of this organ, therefore, or any disease whatsoever, will obstruct the circulation about the digestive organs, nor will diseases of the digestive organs have a less important effect upon the liver. The relation which has been shown to exist between the liver and the excreting organs, especially the skin, will sufficiently

explain why the digestive organs should almost always be effected by any disease of those parts, however slight, not to mention that in case of disease, there is almost always an altered state of the blood, as well likewise as a more or less extensive derangement of the nervous system.

The food of the system should be of three kinds: a waste substance, a substance to nourish the system, and a substance to be burned for the purpose of keeping the system warm. The first is found abundantly in coarse bread, apple sauce, and most kinds of fruits; something of this kind must be eaten; the rule is positive, and must be adhered to *very strictly* by the sedentary: it will many times relieve from the necessity of using medicine. The second is found abundantly in lean meat, milk, eggs &c. Those who are laboring diligently and exposed to a high temperature especially, and in summer all, should use them, together with the first kind. The third is found in fat, sugar, gum, starch &c.; such kinds of food are well adapted to be used in cold weather. A quarter of a pound of sugar, of a cold day, when a person is riding, is worth more for keeping the person warm, than the best warm meat dinner that can be cooked. Sugar, if eaten when the system requires it, is not unhealthy, but on the other hand, very beneficial, for young or old.

In case of the sick, the kind and proportion of the food, should be varied very much according to circumstances. But it is always to be kept in mind, that a sick person, lying upon bed, exercising very little, requires very little nourishment, and if in a warm room, requires but little food for the purpose of keeping the body warm, besides there is usually a larger or smaller stock of fat on hand, and it is easier, as it would seem, for the system to make use of this in preserving its temperature, than to digest

new food. There are no organs to perform the duties of the digestive organs, if they are enfeebled, hence, when they are so, we must endeavor to render their active exertion unnecessary, by keeping the system quiet, and by keeping it warm; by which means, the preparation of much food will not be required. This does not mean that exercise should not be taken, and that a person should be muffled to suffocation. One of the best articles of diet for the invalid, is prepared by boiling a tablespoonful of tamarind jelly, in a pint of milk till it curdles, draw off the whey to use, add two teaspoons full of sugar, (if the stomach bears sugar, if not, omit it,) one teaspoon full of gum Arabic, (or two if there is no sugar,) and a half a pint of strong decoction of Slippery elm bark. This is very palatable and its use may be continued for a long time without injury, it should take place of all gruels, which are decidedly unhealthy.

The organs adapted to producing heat, include the digestive organs, in regard to which nothing more need be said, as the same applies as in case of nutrition; the lungs, the skin, and the digestive canal considered in another light than in its office of digesting.

But first let a few words be said upon the production of heat. Wood and coal are put into the stove, the air draughts over the wood and it is burned; that is, certain parts of the air combine with certain parts of the wood, and heat is given off. The wick of a lamp is lighted, the oil is gradually exhausted or burned; that is certain parts of the air combine with certain parts of the oil and the heat is given off. If we examine the manner in which heat is produced in the system of man, we shall see it is upon the same principal; every composition and decomposition produces a change of temperature, but we find that all those, except where oxy-

gen unites with hydrogen or carbon, are of no particular consequence; but wherever this does take place, in one case water and heat, in the other carbonic acid and heat are produced.

From whence are these substances derived? Of course ultimately from the food we eat and the air which is about us. Nothing farther is at present positive. As we notice the process of decomposition, we observe that the substance decomposed, is constituted of hydrogen, carbon and oxygen; if when the substance decomposes, these unite with each other and form water and carbonic acid gas, heat will be produced. If the oxygen present is sufficient to unite with all the carbon and hydrogen, all is said; if not then it might be that oxygen from the blood which was passing just then, might combine with the remaining carbon and hydrogen, producing heat.

These things to a greater or less extent, are doubtless continually taking place; but yet will not by far account for all the phenomena that we see, considering which, it would appear, that some heat was produced in all the various parts of the system, but that the greatest part was produced in the lungs and in the skin; the first being very appropriately called the furnace of the system.*

The air which we inhail and deposit in the lungs, is composed in part of oxygen; the air-cells are extremely delicate; the blood circulates in equally delicate blood-vessels, and is composed in part of oxygen and hydrogen which it has received from the food, and as the results of decomposition.

The oxygen of the air and the components of the blood having a strong tendency to unite, combine and produce

* Stoves and fireplaces may on the other hand, be called the breathing apparatus of the house; and when one smokes, it may be called asthmatic.

heat, a portion of this is lost by the expired air, but another portion warms the blood, which being distributed through the system, becomes cool by warming it, and circles back to have its temperature again restored, most generously gathering up and bringing with it its own fuel and to spare. Through the skin likewise, the air is continually acting upon the blood, though not with so great facility as in the lungs, yet when the lungs are diseased and cannot vivify the blood perfectly, the skin becomes of immense importance, and every attention must be paid to increasing the action of the air through the skin; the saliva being frothy, as it is swallowed, conveys air into the intestinal canal, which can there act upon the blood with almost as great facility as in the lungs. Hence, one reason why persons having diseased lungs have not unfrequently derived great benefit from public speaking.

That the lungs may properly execute their functions, they must receive a constant supply of pure air. This can never be when every crack and cranny of a room, especially of a sleeping room is closed and it has no communication with out doors. It is really strange that after so much has been said about ventilation, so little is done about it; and it would seem that physicians are about as remiss as any person.

The window should always be slightly open under almost all circumstances; not so that the wind will blow upon the person in bed, great care should be taken against this; but a good ventilation should be secured as of paramount importance.

The air must be allowed to come in contact with the internal surface of the lungs; when this is coated from any cause, the system must suffer to a corresponding degree. This effect we know to be in the majority of cases produced

by a derangement of the skin; colds are taken as it is said, the lungs become effected, the whole system is feverish, and it is only by the return of the skin to its healthy action, that the difficulty is relieved.

A free circulation of blood must likewise be preserved through the lungs; when it does not exist, we must have recourse to the assistance of the skin as before said.

The class of organs that are adapted to cooling the body, embraces the lungs and skin; but the lungs are so little important, that we may consider the skin as the only organ adapted to this purpose. There is no other organ with which it can alternate its functions, and hence it is the most important organ of the whole system. Upon its surface is poured out continually in larger or smaller quantities, the fluids of the system, that by evaporating they may always equalize its temperature. The utility of this is seen in case of a burning fever, where the patient is tossed from side to side, and a raging delirium has usurped his intellect, a gentle perspiration breaking out, the evaporation restores the whole system to quiet, the man sinks into a refreshing slumber and wakes to life and health. I said there was no organ that alternated its functions with the skin in this respect, and it was correct. The kidneys remove the fluid from the blood in large quantities sometimes, but not for the purpose of cooling the system; it seems to be thus: the skin is freely perspiring and much fluid has been taken, upon exposing the skin to cold, the vessels are closed and the vessels of the internal organs would have become congested, except relieved by the action of the kidneys. The kidneys in a similar manner evacuate a large quantity of fluid in certain dropsical effections when the complaint is breaking up; and a like assistance may be rendered by the skin,

The functions and structure of the skin will be treated upon in the next chapter, and at greater length than I have spoken upon any part in this; as it was only the intention of this chapter to bring before the reader a general view of all parts, that the propriety of observing certain rules in respect to diet, air, &c., might be clearly seen, and that the relation of the skin to the various parts might be understood. To speak of its relation to the primary organs would occupy too much space, except as something may be said in the next chapter.

The system is a whole, and a derangement of any one of its parts, deranges the whole. It is a most wondrous piece of mechanism, capable from a few bits of a potatoe or the like, of producing its own heat, repairing its own losses, and developing itself to maturity. Well did the poet exclaim from the fullness of his heart,

> "How wonderful, how complicate is man,
> How passing wonder He who made him such."

Nor can we examine the least part or most inferior function of this "beautiful piece of clay," without feeling in part at least the enthusiasm of another,

> "———was every faltering tongue of man,
> Almighty Father silent in thy praise,
> Thy works themselves would raise a general voice
> ———proclaim thy power;
> And to the Choir celestial Thee resound,
> The eternal cause, support and end of all."

CHAPTER III.

In the present chapter, the reader is to be presented with a more particular description of the functions and structure of the skin, and a concise view of the effects of bathing both in health and sickness.

I shall divide baths into warm and cold; those of a comfortable temperature and more elevated, I shall call warm; those below are cold. This point varies much in different individuals, and in the same individual at different times. The effect of cold or warm baths as you pass to the extremes above or below this point, differ only in degree.

Cold baths include sea, river or lake, tub, ice, shower, affusion, douche, sponge and cold air baths. Warm baths include tub, shower, affusion, douche, sponge, vapor and hot air baths.

Sea or river bathing is sufficiently well understood; the tub bath is a reservoir, tub, or box of sufficient size to immerse the body; the ice bath is the application of ice in such a manner that it shall effect the whole or part of the body; the shower bath is an arrangement for allowing the water to come down through small orifices, and thereby to resemble a shower; the affusion bath is where the water is gently poured over a person; a douche bath is where the water is spouted or poured in a small stream, and with some force upon some part of the body; a sponge bath consists in the application of water by the sponge by towels, by the hand or any such means, to a part or the

whole of the body; a vapor bath is for the purpose of subjecting a part or the whole of the body to vapor.

Vapor may be produced by any means that will do it, and received in any thing that will contain it. A hot or cold air bath is obtained by subjecting the body, or a part of it to cold or hot air.

Baths may likewise be divided into simple, medicated, and perfumed; the nature of which is sufficiently indicated by their names.

Baths may be applied either locally or generally; and in both cases their effects will vary according to the state of the constitution. The effects of baths will vary according as they are used momentarily or continuously.

The first effect of baths will always be upon the skin, and through this, a secondary effect will be produced upon the system, mental as well as physical,

> "E'en from the bodies purity, the mind
> Receives a secret, sympathetic aid."

The system at large is affected by baths through the skin, in the first place, by the conduction of heat, either to it, or from it; and in the second place by the effect which baths have upon the functions of the skin. Let us immediately consider these in their order, and the effects of the various kinds of bathing upon them, and at the same time the effects upon the other parts of the body through them; to do which, advantageously, it will also be necessary to consider the structure of the skin.

The skin is composed of three, lamina, the cuticle, the rete mucosum, and the dermis.

The outer lamina, or cuticle, is that colorless, bloodless,

nerveless part, under which the water of the blister is deposited. It serves as a protection to all within it, and is the medium, through which the impressions are made upon the delicate nerves, that terminate at the surface of the dermis. To fulfil this intention, it must be soft, yielding and elastic. Hence its surface is constantly lubricated, with an oily water shedding fluid, to keep it from cracking and chapping. But upon its surface is likewise deposited the excretions of the skin, the fluid for evaporation, the dust, &c., &c.

Thereby a kind of viscid gum is formed, which coats the skin, closing the tiny mouths through which the oily secretions is poured out. The cuticle then becomes harsh and dry, it cracks and is troublesome, it looks coarse and brown, and ere long gives way to cutaneous diseases, eruptions, &c. It would seem then, that much attention should be paid to removing this varnish, as it might be called, especially if it is considered that two pounds of substance upon an average are daily thrown out by the skin. A large portion of this to be sure is water and evaporates, but quite an amount remains, to injure the cuticle and retard the execution of the various functions of the skin. That the removal of this is important, how many can testify from experience in summer, when a free prespiration, softens the accumulations upon the skin, and the friction of the clothing removes them, while for comfort's sake, ablution is occasionally practised, the cuticle becomes soft and agreeable, the skin is healed of its chaps, and eruptions disappear, which again becomes troublesome, when cold weather comes on. In some cases however ablution being very seldom performed, the substance upon the skin being merely softened, it remains upon the skin, becomes acrid, irritates it and not unfrequently by being absorbed, together with other causes, it produces fatal disease

in the system. The cuticle can be partly cleansed by rubbing the skin thoroughly with the flesh brush, the flesh rubbed with towels, &c., and by cold baths, if frequently used, but much more effectually by the warm water bath, and most perfectly by the vapor bath. The cold baths do not remove the oily substance from the skin, easily. The warm tub bath is very good in this respect, but it is apt to corrugate some parts of the skin, if used for a sufficient length of time, to cleanse the skin upon all parts of the body, as is frequently seen after it has been used. Soap is frequently used, but should not be; it not only removes the oil from the surface of the skin, but absorbs it from the cuticle, which it renders rough and liable to chap. The vapor bath, softens all the substances upon the cuticle, and by the use of the towel, it can all be perfectly removed, and it leaves the cuticle with a soft and delicate feel. If a shower bath follows this, the effect will be admirable. The warm sponge bath answers very well, if a convenient apparatus is not at hand, to give a vapor bath; if the cuticle yet remains hard, some emollient substance may be added to the bath, or what is better, it may be rubbed over the skin after the bath has been taken.

The perfumed bath will have a permanent effect upon the cuticle.* Whatever substance is used, will be more or less absorbed, and as the blood does not circulate through the cuticle, like any membrane it will for a long time retain the odor of the perfume that has acted upon it. The effect will be but slight, except in case of the vapor bath, in which if strong perfumes are used, it will be perceptible for days, or weeks.

* This remark applies of course only to the "Toilet Vapor Bath."

The second lamina of the skin is the rete mucosum. This is a delicately organised, pulpy net-work; the seat of the pigment, that distinguishes the complexion. It is both useful and ornamental. For while it intervenes, like a cushion, between the cuticle and the nerves, to shield them from the harm of too great pressure, it gives such exquisite beauty to this our outer garment, that it seems at times, as if it had robbed the lily of its delicate whiteness. Like all the internal parts of the body, the pigment is continually removed and re-deposited, though the change takes place slowly, compared with the renovation that is going on in some parts. Cases proving this, have occurred, where by sickness a beautiful complexion was gained; though they more frequently occur where one is lost. It is also necessary that the air and light should act freely upon the pigment, that it may possess its greatest beauty; a lovely lustrous white, of peculiar deepness and attraction. The sickly pallor of perfect seclusion, the languid paleness, too frequently characteristic of an unhealthy city life, is far from desirable. Too much exposure to the sun and wind, on the other hand, browns the skin, or produces freckles, which can hardly be said to add much to the beauty of complexion, though infinitely preferable by any person with truly refined taste, to the death-like blanchness before mentioned. The healthy action of the air and light, is obtained by the same means as were directed to be used for the benefit of the cuticle; an active circulation of blood in the skin renews the pigment, and is to be obtained, and preserved, by friction upon the skin, the momentary use of the cold baths, the shower for instance, the application of heat, the hot air, or the vapor, or the warm water baths, for instance, and the use of warm clothing. Thus will be given to the complexion, a delicate

freshness of coloring, which combined with the subdued tinge, communicated by the freely coursing blood, can only be compared to the "exquisite bloom that dwells on the roses of paradise." A bath should certainly form a part of every ladies toilet. For if the luxury of a vapor bath, perfumed with otto of roses, or some other of natures highly elaborated compounds, if the softness and delicacy it will give to the texture of the skin, and which constitute so much of woman's outward loveliness and beauty, are thought effeminate, and unworthy to be sought, most surely a wholesome clearness of complexion, may not be despised, especially when only a concomitant with so many other advantages, as are bestowed by the bath.

The dermis is the third, and deepest, as well as most important lamina of the skin; it is hence not unfrequently called the true skin. Its upper surface is studded with the minute extremities of nervous filaments, that connect with the nervous centre of organic life, and also, with the brain; thereby rendering the skin the organ of the sense of touch. These nerves, not only report the nature of objects in contact with us, as it respects their softness, or hardness, their dryness or moisture, their form and irregularities, but they also faithfully transmit with the most discriminating accuracy the slightest impressions made by the ever varying temperature to which we are subject, thus assuring us when we may enjoy ourselves in peaceful security. Nor is the sense of touch merely passive, but is active, and indeed one of the most pleasure giving of the senses, delighting the mind with the most soothing sensations, as when the soft breeze of summer plays upon the brow; when in careless dishabille a person has stretched himself upon the ground beneath the shade of some old elm, to inhale the odor of flowers

and bush, and tree, and fresh mown hay; to listen to the cadence of the music making waters; to hear the chirping of the thoughtless birds, the singing of the summer loving grasshoppers, or the cricking of the happy crickets; to look at the dancing leaves, the waving limbs, and fickle clouds that flit apast the the sun, as if no winter's wind should ever freeze them,—to enjoy the full satisfaction of the senses, and think of——nothing. That gently breathing breeze, as it wafts along, filling every nerve with such tranquil etherial delight, ere he is aware, does not the individual thank God for existence, and bless him that he has gifted man with the sense of feeling.

Nor do they fail to warn us when danger is approaching. For let the chill north-east blast, the servant of consumption, steal upon us ever so treacherously, they wake us to alarm in the first moment of peril, nor will they cease their uneasiness, till the system is protected with a good warm wrapper. Nor are they less assiduous, in warning the nervous centre of organic life, that every effort may be made to fortify the system against the attack made upon it. All this occurs when health and vigor reign universally throughout the system. But if the circulation through the skin is irregular, and accumulations upon the skin render all its functions irregular, our vigilant sentinel, thrown off its guard, or unable to fulfil its duties, no longer rouses the nervous centres to action, and coughs, colds, liver complaints and all their train, whose name is legion, creep stealthily in and seize without mercy, upon their unprotected victims; the brain is distressed with false reports, as when a patient attacked with the fever and ague, gathers himself up before a roaring fire in mid-summer, shivering and chattering as if all the winds of the north and east, had come to dwell with him. In some

cases, the skin is not at all in fault, its functions being perfectly performed, the nervous centres, are themselves deranged, and originate the sensations that are referred to the organ of sense as the producing cause.

That the sense of feeling may be refined and acute, giving us all the pleasures it is capable of conferring, and that it may be alive to all the dangers that assail us, a proper state of the circulation must be preserved, and no substance must be allowed to collect upon the cuticle. How these requisitions are to be satisfied, has already been shown.

The effects of bathing upon the system through the nerves are very various. First, of the effects of the cold baths momentarily and generally applied; this is best exhibited by the shower bath; the water falling impinges upon the skin, and running quickly over it, removes much heat; alarm instantly seizes the nerves of the skin, and they telegraph the brain; quick as thought it bestirs itself, and sends the most imperative despatches to the organs of sense, that they awake to their duty, and learn the extent and source of danger; every muscle is put in readiness for the action that may be required upon the receipt of further inteligence. Equally seasonable is the report to the nervous centre of organic life; the sudden loss of heat is made known; with the speed of lightning a hundred influences are exerted, the blood-vessels of the skin are enlarged that they may contain more blood, the heart is brought into violent action, amounting almost to palpitation, that the blood may be driven to the surface, the respiratory muscles are almost convulsed that heat may be supplied to the system, compensatory for that which is lost, the appetite is called upon to increase its demands, the stomach is put in order to receive the required food, the activity of the liver and pancreas is increased that

the fluids neccssary on the occassion, may be supplied, every organ, primary and secondary, is brought to its post, so to speak; hence, the shock, as it is so called. For the instant, this is not pleasant, but no farther cause for alarm being perceived, and the reacting blood producing a grateful warmth throughout the skin, the most pleasureable sensations are experienced, and the excited action of the system is quieted, but not altogether, as when a spirited horse has felt the whip he forgets it not soon, so in the present case though the cause acts but for the instant, the effect lasts the whole day.

If the system is sufficiently vigorous to cause the reaction, or the bright glow, this bath is decidedly advantageous, or if the glow is produced by wiping the skin, the bath may be adventured upon farther, but with caution. If however the skin remains pale, and the person feels cold, the experiment must not be repeated, and must be immediately followed by a warm bath; vapor will be best. This bath may be used with the greatest profit in the morning. It gives a person an excellent appetite for breakfast as would be understood; by causing the forcible action of the respiratory muscles, it expels the air which has been stagnant in the outskirts of the lungs during the night, and produces an energy in the system generally, fitting a person for the duties of the day.

In those states of the system where there is general debility, in cases of chronic dispepsia and the like, where the complaint seems to arise from no particular cause, the stimulating effect of this kind of bathing will be found of the greatest advantage. If the temperature of the skin is depressed by cold, or elevated by heat, the effect of the shower will be very different. In some cases, where the skin is pale and

bloodless, the impression that will be made by a shower will cause a rush of blood to the surface, and be very genial in its effects. If the temperature of the surface has been elevated by standing by the fire, by taking a warm bath, or by exercise, or by the heat of summer, the shower will hardly be felt. Most persons would suppose on the contrary, that taking a shower bath immediately after taking a vapor bath would be very unpleasant. But why should it be? Under such circumstances, what cause is there for alarm? Heat had better be lost than not. Hence the Russian takes a vapor bath, and rushes out to roll himself in the snow, or jumps into the half frozen river, not only with perfect impunity, but with decided benefit. A vapor bath followed by a shower, will be one of the greatest luxuries to a man in health that can be enjoyed, every pore seems to drink in delight, and the whole soul to be revived, mental elasticity is brought to its most healthful tone, the eye sparkles with the animation that pervades both body and mind, and the waves of blood as they flow and reflow, will paint upon the cheek with most beautiful tints the slightest emotions that spring up in the soul.

The local application will have the effects I have now spoken of, but in a less degree; the chief effect is to cause a reaction to the part upon which the application is made. It is exceeding useful in many of those cases of a dropsical nature, where the circulation is stagnant. Where there is recent numbness, it is very advantageous; almost always in the first cases, and in a majority of the last, it should be preceeded by a local or general vapor bath.* I have spoken

* In many of these cases where I speak of bathing, let me be understood to mean in addition to other treatment, though in many it is sufficient of itself; but a good judgment must be exercised in respect to this. And let me also say, that of course the other treatment will have an effect upon the manner in which bathing ought to be applied.

of the shower bath as producing all these effects that I have mentioned, but they will be produced by either of the other kinds of cold bath used for a few moments. If we step into the sea, river, or tub bath, and immediately come out, reaction and glow will succeed. The effect of the cold air bath is so gentle that it can hardly be classed with the shower bath, no shock will be produced, but it acts nevertheless as a slight stimulus. The sponge bath is intermediate in its efects between the air and shower bath. Most of the cold is produced by evaporation, and there is a succession of slight shocks, as the sponge is brought upon the skin. The warm shower, and sponge bath may be classed with the cold shower as the effect is the same, only gentler.

The continued application of the cold bath affects the system very differently from the transient application. The cold tub bath illustrates the effect well; at first the shock and reaction is similar to the effect of the shower bath. The internal organs labor to generate heat as rapidly as it is lost, and for a time they succeed; but over excitement exhausts them in a short time. Heat is continually removed, the nervous system becomes very much depressed, and the individual is deprived of both physical and mental energy; the power of generating heat is especially affected. How often lads go into the water and remain, till when they leave, their teeth will chatter, and a whole day will be required before the energies of the system will be restored. Sometimes it unfortunately happens that this practice being too frequently repeated the vital energies become exhausted and the boy sickens and dies. As a means of reducing the excitement of the system, when not of a nervous character, and when accompanied with much heat, the cold bath is very good; but the greatest care must be used not to remain too long in

the bath; if there is the least discomfort upon coming out of the bath, recourse must be had to the warm bath. If the system is debilitated, the cold tub bath must by no means be used; but of a warm day and in case of a full constitution, the cold bath used for a proper length of time, will be very refreshing and strengthening, and will give tone to the mental energies. There is less danger attendant upon the use of the sea or river bath than upon that of the tub bath, the exercise of swimming assisting in the production of heat; the sea bath seems to have a more stimulating effect than the river, and I think different from what would be produced by its temperature alone, but from the low temperature of a sea bath, it must be used with the greatest caution by the feeble. The continued cold bath is applied locally with the very best effect; it quiets the action of the part, lessening the pain, and in many instances entirely removing it. At first of course it excites reaction, but after a little time this is overcome; but of this I can speak more appropriately when treating of the effect of the conduction of heat from the system.

The local application of the cold bath is usually by means of the sponge or of towels dipped in water. Ice is sometimes used, but it seems to me to be too powerful as a general thing; and that some persons have lived after its (improper, as I should say) application, only shows what can be endured, not what ought to be; it is sometimes used with the greatest advantage. Cooling lotions are sometimes made use of, to quiet nervous excitement.

The effects of warm baths, if not applied of a very high temperature, are at first soothing or quieting, then stimulating or exciting, and then exhausting. The most favorable of the warm baths is the vapor; its temperature can be

graduated more accurately and raised more uniformly and its effect is less harsh, so to speak, less immediate, and at the same time more effectual than the water bath. The temperature of the vapor bath should be very low at first, and gradually raised; it will then be perceived that when the temperature of the vapor is above that of the body a very placid state of the nervous system is experienced, which allows all parts of the body to participate in the relaxation which it is itself enjoying, but as the temperature increases, the nervous centre is made aware of the exposure to which the body is subject, and the whole system is excited to action, a profuse perspiration breaks out, that by evaporation the system may be relieved of heat; if the bath is taken for a still longer time the over excitement will produce exhaustion, the skin especially will be in a very relaxed state, which if it has not been carried too far, is somewhat relieved by the astringent effects of cold; if it has, cold will make a bad matter worse, time only will enable a person to recover. A vapor bath should never be taken for this extreme length of time. It should only be taken till the perspiration begins to start upon the lips or forehead, cold should then be applied to the head by means of wet cloths, lotions, the shower, or the like. If a person will be governed by this rule, *there will never be any danger of taking cold from any exposure to which he shall subject* himself. The effects of hot air are similar, but of a more stimulating nature; the vapor tends to soften the effects of the heat.

The warm water bath is similar also, but the water seems to act more dead, so to speak, the increase and diminution of temperature cannot be governed so well. Its effect is more immediate, and hence sometimes apoplexy has occured upon

taking the warm tub bath of a high temperature, the action of the system was so violently increased. Its relaxing effect upon the skin is much greater than that of vapor, and hence persons sometimes take severe colds after it. I have seen a young man but recently, who is on his way to the grave, probably from exposure after taking the warm tub bath. Too great care cannot be used in taking the warm bath. There is no rule by which to be governed in the length of time, during which it may be used as there is in case of the vapor bath. As soon as any oppression is felt, or any dizziness, most surely the bath is to be left, and cold water should be applied to the head.

The warm bath should very rarely be employed generally. *The head should never be exposed to the vapor or warm water*, except for some disease of the part. But on the other hand cold should be applied by the sponge or towel, or by means of ice; this will render the bath much more pleasureable and tonic in its effect. The warm sponge bath is used by a great many who have not better means at hand, and is prefered to the cold sponge, though it is nothing like as congenial to health. It is more grateful to the nerves while being used, and its use is not reprehensible if care is taken that the skin is not too long exposed; for the evaporation of the water, and the conduction of heat by the air, is apt to lower the temperature of the body.

But I must pass to consider the other functions of the skin.

The dermis is not only plentifully supplied with nerves, but an equal or even greater number of blood-vessels are every where distributed through it, forming a net work so delicate that its meshes are not perceptible to the naked eye; so that when the blood mantles to the cheek, it seems as if the roseate tint was spread by the pencil of the painter, not

by the blood confined within its appropriate vessels. By this means the skin is supplied with blood, and made able to perform its functions of absorption, excretion, and causing evaporation. By absorption it receives oxygen and perhaps other constituents of the air; the fluids and solids floating in the air and whatever is about us. By absorption of oxygen it produces heat, (and perhaps other effects,) and takes upon itself the function peculiar to the lungs. By the absorption of water the functions of the system will at times be assisted. By the absorption of other substances the system will be nourished, medicated or poisoned. Absorption of oxygen is facilitated by keeping the skin clean and moist by an active circulation of blood in it, and by exposing it to pure air. Absorption of moisture is facilitated by diminished action of of the kidneys, abstinence from drinks, an active circulation and exposure to heat and moisture for a few moments and the removing the heat by conduction as soon as perspiration begins to flow. Absorption of nutriment and medicament is facilitated by abstinence from food by applying the substance in the form of a hot fluid, or of vapor, and by conducting away the heat as soon as the perspiration begins to flow; by a free circulation, by cleansing the skin, by rubbing the substance upon, into, and through, the cuticle, and by abading the cuticle and applying the substance directly to the dermis. Absorption is prevented by supplying the system plentifully with food and drink; by keeping the system warm, and by exciting a gentle, continual perspiration.

By its function of excretion, the skin relieves the system of effete substances which have been introduced with the food, absorbed by the skin or lungs, or have resulted from the decomposition of the body. Its task in this respect, is very important, for as soon as it is not fulfilled by the skin,

it is devolved upon some other of the excreting organs, and congestion, and inflammation, and irregularities are seen in the liver, lungs, kidneys, and digestive canal. Excretion is facilitated by a free circulation of blood through the skin, by cleanliness of the skin, and by a dry air, (if not too dry,) and by the presence in the blood of substances to be excreted, and perhaps by a specific nervous influence exerted over this function.

By its function of causing evaporation, the skin relieves the system of its superabundant heat, and becomes the most important organ of the body. The substance perspired for this purpose is not usually distinguished from the excretions of the skin, but they seem to be sufficiently distinct; though both are eliminated at the same time in many cases. This function is affected in the same manner as that of excretion.

A free circulation of blood through the skin, and cleanliness seem to be equally essential to the healthful execution of all these functions of the skin. Cleanliness is obtained as has been shown by frequent change of clothing, by rubbing the skin frequently, and by baths. Of these the vapor bath is the most favorable; the warm tub bath, sponge bath, shower bath; the cold shower, sponge, and tub or river bath being according to the order in which I have mentioned them. Woolen flannel is the best article that can be worn next the skin, it should be changed often; that which is worn during the day should not be worn during the night, and two suits of flannel should be worn each week. The stockings especially should be frequently changed. In case of feeble persons who are troubled with cold feet, they should be changed twice or three times per day. Baths should be taken every day. The best course is to take a shower bath every morning, and a vapor bath once or twice per week, this

will keep the skin in a perfect condition as it respects cleanliness. A free circulation of blood is obtained by friction upon the skin, and by keeping the skin warm. There are valves in the veins which prevent the blood from flowing backwards in them, so that by friction upon the surface, the blood is caused to flow on in one direction. The surface should always be briskly rubbed after any bath has been taken, not only to render the circulation active, but that the chill of evaporation may be prevented. Heretofore it has been shown, that the transient application of cold will produce reaction through its effects upon the nervous system, but that its continued application will overcome this, and contract more or less the vessels of the skin. This can be effected by the bath, or by exposure to cold in any manner. Hence the necessity for clothing the system warmly, especially those parts that are most exposed, the feet for instance. People frequently tie up their mouths to protect themselves from taking cold, when it would be far more judicious for them to tie a handkerchief about their feet. There is no proper protection for the feet that the customs of society will allow ladies to wear. Rubbers are decidedly bad if worn for any length of time continuously; they may be worn in the streets, but should always be laid off within doors, in church for instance. But if ladies will have their shoes, bottoms and sides, lined with nice, closely woven flannel, instead of kid, or cotton, or linen, they will find them a great deal warmer, at the same time that they fit the foot more genteelly; two or three thicknesses of silk are still better. Gentlemens boots lined with cloth are much warmer than when lined with leather.

But while the continued application of cold air or water depresses the circulation of the skin, the application of heat

excites, hence the advantage of warm baths when the skin has become cold and pinched; and here again, the vapor bath has the pre-eminence, the excitement is less sudden and forced.

If the warm baths are used for too long time, the action of the skin becomes languid, the internal organs are oppressed and much harm ensues, for much excitement is always followed by the opposite extreme.

To quicken the circulation of the skin, then, we perceive that the same rule holds, as applies in respect to cleanliness. Let a shower bath, followed by brisk rubbing of the skin, be taken every morning and a vapor bath once or twice per week. If a person is an invalid, he must be governed of course by the state of the system.

But some more particular notice ought to be taken, of the effects of absorption, excretion, and evaporation, upon the functions of other organs of the system.

Oxygen may be absorbed by the skin. The absorption of this chiefly depends upon the lungs, but if they are diseased, they cannot perform their task. It is of vital importance that the blood be oxygenated, and hence the absorption by the skin must be increased by all possible means, or the whole system will correspondingly suffer.

The atmosphere to which the patient is exposed, must be kept warm and moist, for on account of its warmth, less oxygen will be required, and on accocnt of its moisture the skin will be more permeable to the oxygen. Too great heat or moisture will be unfavorable, as they would relax the skin, and cause a feeble circulation of blood in it. An active circulation must be preserved by friction, and by warm clothing, and the baths, and as before said, the vapor bath regulated according to circumstances, is the one,

most certainly, to be used in case of lung complaints, but it must very rarely be carried beyond, if quite to the point of causing gentle perspiration upon the face. It adds heat to the system very gently, softens and moistens the skin, and renders the circulation in the skin active. The absorption of moisture is rarely of consequence. When drink cannot be taken without distressing the digestive organs, and there is much thirst, it may be desirable ; it may be accomplished as before said ; or if the system is feverish, the thirst can be allayed by sponging with cold water or by the cold bath, as by conduction and evaporation, heat is abstracted and the necessity of using drink avoided. It would be difficult if not impossible to introduce sufficient nutriment through the skin to benefit the system at all. To avoid the absorption of poison or miasmata, the vessels of the skin should be kept distended by a free use of food and drink, and the skin kept quite warm and gently perspiring.

If our western people would always take some food or drink before going out in the damp air in the morning, and if they would protect themselves against the chilliness of morning and evening, which is always considerable, however warm the middle of the day, they would be little troubled with fever and ague, or any of those troubles that are considered the necessary evils of the new country. To assist in this object it is evident that the warm and not the cold baths should be used, the vapor or hot air being better adapted, I should prefer the hot air.

To cause the absorption of medicines, the warm tub, and vapor baths have been made use of. The administering medicines in the form of vapor is altogether the most successful and advisable way ; when vaporized, they are very finely comminuted, and of course more easily introduced,

besides the heat of the vapor, by distending the vessels of the skin, disposes them to receive the substance readily; as soon, however, as the heat causes the perspiration to start, cold should be applied to the skin to check it, and prevent the absorbed substance from being thrown out; or if the system will not bear the cold, the bath must be suspended merely; but of medicated baths, I shall speak in another place.

By increasing or decreasing the circulation and excretion of the skin, we are able to effect any or all the other excreting organs in a very sensible degree. Whatever tends to diminish the excretion of the skin, throws a greater task upon the others, while on the other hand, when we increase the excretions of the skin, we relieve the others, and if they are diseased restore them to a healthy condition. How true is this of the skin and lungs; if we are exposed to the cold, and the action of the skin is thereby checked, the "chest is stuffed" almost immediately, and as soon as we can restore the action of the skin, it is as immediately relieved, and so of the kidneys, liver, and intestinal canal. Exposure to cold, checks the excretions from the skin as we have seen, as does also a high heat, and a very moist atmosphere. A high heat by over stimulation, and a very moist atmosphere, by preventing a free evaporation, causing an unhealthy accumulation of heat, and when they both occur togther, the skin is very much deranged; and in this case, it seems that the decarbonizing of the blood devolves upon the liver, as it becomes important that less heat be generated than would be if the the blood was decarbonized in the lungs, hence the natural task of both skin and lungs devolving in part upon the liver, it is in a short time diseased by overaction; congestion directly and indirectly taking place,

and of course, in a very short time, the whole digestive apparatus is out of order. We here see, it would appear the entire, or a sufficient reason why the derangement of the skin in cold weather, and in northern climes, should effect the lungs as it does, and why in summer, and especially towards the close of summer, and in southern climates, it should effect the liver the most seriously. One of the most distinguished physiologists that lives, says, "The frequency of diseases of the liver and intestinal organs in damp marshy climates is still unexplained. Could it be ascertained that in some way these circumstances impede circulation and cause congestions, it would be very easy to conceive why the liver and intestinal canal suffer most in the cases; for the circulation in these organs must be doubly impeded, the blood of the intestinal veins and of the venel portae having to circulate through a second capillary system of vessels, namely, that of the liver before reaching the general circulation."*

It seems we have ascertained how these circumstances impede circulation and cause congestions; and we have learned how to avoid their injurious results; it is by the frequent use of cold baths. By this means, we conduct away the heat from the system and restore the tone of the skin.

But when extensive derangement of the abdominal organs, has already occurred, it will not be advisable to use the cold bath, but the warm should be applied. I do not know from personal observation the effects of the vapor bath upon liver complaints, in southern climates, but so far as I can learn, there is no complaint which is more favorably affected by a vapor bath than liver complaints; at the north

* Muller translated by Baly, London, 1840, page 165.

it is certainly one of the very surest remedies and ought to be resorted to, in almost all cases. That great control is had through the skin, over the kidneys, is better known to the physician than to the non-professional man. If the action of the kidneys is too slight, the cold bath should be resorted to, and an abundance of drink used; if too great, the warm bath should be used, and more or less profuse perspiration produced as the case may demand, and abstinence from drink should be enforced. The excretions of the digestive canal are very readily acted upon through the skin, though by its functions of excreting it would seem only to affect the increased action of the intestinal canal; this will be checked almost immediately by a vapor bath; I mean those ordinary cases which are productive of much inconvenience, though in nowise alarming. The vapor bath will likewise move the bowels in case of constipation, but this effect has no connection with the excretions of the skin.

There are a thousand other effects that are produced by increasing or diminishing the excretions of the skin, but I have not space to speak of them.

By evaporation the whole system is relieved of heat, and through the influence of the nervous system is gently stimulated to action. Too great indolence of the nutritive organs is injurious, they having been adapted by their constitution to action, and the loss of heat by evaporation makes action necessary.

The loss of much fluid from the skin for the purpose of affecting the kidneys, I have spoken of under excretion. But I will speak of it as affecting dropsical affections, under this head. In these affections, the less drink there is used, and the more active the kidneys and skin, the more readily will the fluid be taken up that is deposited in the system,

causing the dropsy. To render the skin active under such circumstances, nothing is so good as the vapor bath, for it stimulates the part affected at the same time it increases the activity of the skin.

Exposure to cold renders evaporation unnecessary; a moist atmosphere prevents it, while exposure to heat renders it necessary, and dry air facilitates it. At times then we can relieve the action of the skin by the cold bath; a cold sponge bath will be most appropriate, which by conduction and evaporation will remove heat. But this must not be carried too far, for it is to be recollected that the excretions of the skin are partly fluid, and if too much heat is removed by conduction, they will remain behind to cause disease in the lungs and liver. For this reason it is that those who work in underground rooms suffer very much from lung complaints. Exercise is taken and much substance is to be eliminated, but too much heat is lost by conduction to have any lost by evaporation, for such places are damp and cold at best, especially if not occupied the whole while. It is no wonder that people who speak in such apartments, that are open only once in a few days, are troubled with the most serious affections. Necessity alone should excuse the occupation of such rooms. Is not God the author of the physical laws?

But the skin from the position it occupies has the accidental functions of conducting heat to and from the internal organs.

Heat acts upon all the organs directly, as it does upon the skin, it stimulates them to action. It increases the capacity of their capillary system, and perhaps produces an additional effect through the nerves. Cold applied continuosly has a sedative effect. Each of them act most powerfully when

used in conjunction; that is, when heat is applied to one part and cold to another. Parts of course will be affected by heat applied to another portion of the body quite distant, it may be, and so also of cold. For when the capillary capacity of a part is increased, blood will be determined from other parts to it, and vice versa, when it is lessened by cold, the blood will be determined to other parts. The transient application of heat, or cold, will have but little, if any direct effect upon the internal organs. The remarks under this head refer, therefore, to the continued application, which may be produced by the sea, river, cold tub, ice, cold sponge, cold air, or by the warm tub, warm sponge, vapor, and hot air, generally; by the cold douche, ice, sponge, cold air, or by the warm douche, sponge, vapor and hot air locally.

The general effects of cold bathing are evident from what has before been said; they are admirable in extremely hot weather, but would not be advisable in winter, as they would depress the function of the system and unfit it to bear exposure with impunity. For the very opposite reasons the warm baths will be of the greatest service in cold weather, and ought to be used in the winter. And upon trying the experiment with them, we shall immediately give the preference to the vapor bath. The proper daily use of this during the winter would be in the highest degree congenial to health. By proper use, I mean the use of the salt vapor, the nature of which I shall by and by explain, to the point of causing a gentle perspiration, the head not being exposed to the vapor but on the other hand, kept cool by proper applications, cloths dipped in cold water, &c. I know from a long time experience with myself and hundreds of others, that what I say is correct, and that a person taking a vapor bath in this way is not liable to take cold after it, but on the

other hand the system is braced against the effects of cold, and if a person is about to be much exposed, take a long ride, or anything of that sort, a bath of this kind sbould be taken as preparatory. If the whole system has become chilled, than which there can hardly be a worse state produced, a vapor bath will give immediate relief, and it may then be carried a little beyond the point of producing gentle perspiration. After a person has been riding, and has been wet, or often the feet have been exposed, and getting wet have rendered the whole body uncomfortable, a vapor bath will warm the whole system, and a person can retire to a most comfortable rest in five or ten minutes, or putting on dry clothing, can again return to his business. When the whole system has been exposed to fatigue, and the muscles have become sore, and the nervous system feels exhausted as when a person has been laboring or taking a long journey, the stimulating effects of the vapor bath in refreshing and relieving the man, are almost past belief; if a person has tried a vapor bath once in this case, he will always remember it with peculiar pleasure.

In case of a cold, a vapor bath should be taken not only for the relief it affords to the lungs, but for its effects upon the whole system, and it should be taken to the degree of producing pretty free perspiration, at the same time let the skin be briskly rubbed, retire to rest a little earlier than usual, use no drink, and in the morning the cold will be gone. The salt vapor is to be used in this case, and the addition of a little camphor renders the bath more effectual. In case of rheumatism the vapor bath stimulates the whole system favorably, and should be applied generally once a day; the salt vapor being used in this case with the addition of camphor if you please. In almost all cases it will

relieve the stiffness and soreness; immediately it should be caused to produce pretty free perspiration. In all these cases the head should be kept cool, except for some especial reason for applying vapor to the head. In case of rheumatism in a person under fifty years of age, I consider the following treatment almost a specific: Let a bath of salt vapor* be administered to the whole body once per day, and to the part affected, from one to four times, as the case may be; if the pain is not altogether removed by the vapor, apply cold cloths to the seat of the pain, which will relieve it. It may and probably will return in a few hours, but not be so severe as before; the bath is to be again repeated. Tincture of Aconite is to be administered internally every two hours, begining with two drops and increasing one drop each dose till a slight tingling is produced in the extremities, which tingling, or prickling is to be continued, but not increased. If there are nodes, iodine is to be used. If the bowels are not acted upon sufficiently by the vapor bath, sulphur is to be taken. If there is a torpid state of the liver, and of the system generally, take sarsaparilla, dandelion, water dock roots, and slippery elm bark, of each half a pound, and steep them in a sufficient quantity of water, and let about a wine glass of the infusion be used half an hour before eating. By this course a patient will be well in three or four days at most, as a general thing. The physician will find it advantageous in some cases, to make use of oil of savin, arnica, montana, bark, colchicum, and oil of turpentine, single or combined. Depletion is very seldom required, and almost always injurious. In cases of old persons, the greatest relief will be given, but a cure is not so certain. By

* Some might object that a salt vapor could not be produced. But I have obviated that objection though in no case valid, by a piece of apparatus I shall by-and-by describe.

cure, is not meant that exposure shall not bring on an attack again, it most surely will, when the same course is to be repeated. Lumbago is to be treated in the same way but will usually require but a single bath.

The stimulating effects of the salt vapor bath, is always to to be tried in Asthma, for though this complaint is one of the most unfortunate for a physician to have upon his hands, this remedy is the most successful in relieving it. The inhaling of vapor is likewise to be tried, while the shower is allowed to fall upon the skin, and upon the other hand the inhaling of cold, or iced air, while the vapor is applied to the skin. The cold and warm douche is to be tried upon the spinal region, as the impression thus made sometimes relieves. The patient is in some cases to be kept in a dry air, and sometimes in a moist air, the last is to be obtained by continually producing vapor in the room to the requisite degree.

I shall be able to attach a small piece of apparatus to my vapor bath for the purpose of regulating the moisture of a room perfectly, which will be of great value in case of patients afflicted with lung complaints. To preserve a dry air, unslacked lime may be used, or any deliquescent salt. In case of croup, or what is commonly called croup, the effect of the vapor bath upon the skin not only, but upon the system generally is such as to render it one of the most efficacious remedies.

The vapor may be inhaled, and if relief is not instantly given, cold cloths may be put about the neck. A dose of hives syrup, wine of antimony, ipecacuanha, lobelia, or some emetico expectorant should be given at the same time. In case of children being liable to croup, hives syrup, or some

such preparation, and a vapor bath should always be kept in the house. Hives Syrups are variously composed, some good kind can be obtained I presume, of most of the apothecaries in city, or in country, or they can prepare something that will answer the same purpose, but a vapor bath is still more essential. Salt vapor is greatly to be preferred. With the vapor bath I shall describe a flow of perspiration can be produced in five or six minutes, so that relief can be give instantly.

In almost all cases of female debility, the very greatest assistance is is to be derived from the use of salt vapor. In all those cases where there is a pallid, bloodless countenance, a flabbiness of the flesh, a languor of the entire nervous system, a vicious state of the biliary secretions, and any irregularity of those functions peculiar to the female, the vapor bath is imperatively demanded; it should be taken two or three times per week, and on the other days, a cold shower or sponge bath should be used if the patient can bear it, if not, a warm shower or sponge; flannel must be worn; if woolen irritates too much, cotton may be used instead; this must be changed twice or three times per week, and different worn during the night from what is worn during the day; especial care must be taken to change the stockings, and keep the feet dry; exercise must be taken regularly every day, but not so as to cause the least fatigue; the bowels must be kept open every day, and for this purpose regulate the diet, or take medicine; in addition to this let tonic medicines of iron, conium, tolu, piperin and aloes, or the like be used; the additional treatment must of course be varied according to circumstances; but if the course I have stated is strictly followed, a great majority of these cases will in a

short time entirely recover, while many others will permanently amend.*

In all cases of general debility, the stimulus of the salt vapor bath will be very much prized, especially in cases of dispepsia. In these cases it should be taken every other day, alternating with the shower bath, or every day followed by the shower bath.

The local application of cold upon the internal organs is sometimes very great, it is usually applied by cloths dipped in cold water. In case of wounds, or bleeding from other causes, cold cloths should be laid upon the part, till the bleeding is stopped; the part should then be exposed to the air for a little while, and a moderately warm cloth applied, and a correct state of the circulation, and a proper comfort of the part is to be preserved, by the application of cold and warm cloths, till the part heals. All those applications of vinegar, alcohol, camphor, tallow, and the like, being decidedly injurious. If the water dressings are used from the beginning, there will seldom be need of escharotics, and the part will be likely to heal without leaving a scar. Whenever there is heat to be felt upon the surface, or there is an inflammatory appearance exhibited, cold applications are to be made. In case of phlegmonous swellings, erysipelatous appearances and the like, for which warm poultices are so much used, the application of cloths dipped in cold water will be much better; the pain will thus be removed, and the

* The Red Tonic Mixture prepared by Dr. I. Andrews of New York, is composed for a great part of the above ingredients; it is very elegantly prepared for the use of druggists and physicians, and may be depended upon as an excellent article. It can be obtained at most of the druggists, and should be in every family, as it is one of the pleasantest, and most effective medicines that females can use; it is likewise one of the best tonics in complaints of the liver and digestive organs. The ordinary dose, is a teaspoonful three times per day.

diseased action will subside more readily, or will be brought to a more speedy, and less painful termination, if it is desirable to have suppuration take place. In case of rheumatic pains, and the pain produced by sprains, burns, &c., the same course will relieve the pain immediately. The sensation of internal heat will be no indication that it exists, it must be felt as you put your hand upon the external surface, and the cold applications are then to be made till the trouble is relieved, the false sensation of heat is frequently referred to the stomach, which perhaps the application of heat will relieve. In acute inflammation of the bowels, of the liver, or of the stomach, cold cloths, or the sponge may be used externally with great relief. Sometimes cold drinks and ices are swallowed with the same object, but the propriety of this may be very much doubted. In pleuritic and lung inflammations, cold cloths may be applied to the chest, or cold air may be inhaled by drawing it through ice, or through a tube surrounded by ice. In these cases heat should be applied to the skin. This course is especially worthy of notice in those cases where the patient is prejudiced against bleeding, or where other causes render it unadvisable.

In tendency to apoplexy, and congestions of the brain, in most head-aches, and when the head feels hot, cold applications should be made while a vapor bath is applied to the body. Sick head-ache will almost invariable be relieved by this means; if produced by, or concomitant with a deranged state of the digestive organs, a slight cathartic should be used, a strong decoction of water dock, is one of the best. Headaches from over excitement will be affected in the same manner. In cases of intoxication, the person will be sobered almost immediately; bags of ice are frequently ap-

plied to the head in these cases. The cold lotion of sal-ammoniac and saltpetre dissolving in water, may be used instead. In inflammation of the throat, gargles of cold water, or ice are used with great benefit. The local application of cold in case of piles, is many times very useful, it is usually made by the use of the hip bath, or of ice, some medicine is usually required in addition; one of the best is composed as follows: sulphur, elecampane, liquorice, each one ounce, aloes, one dram, pure northern honey, four ounces; the dose is a teaspoonful three times per day. Many authors say that aloes must not be used in this complaint, but that is a mistake, nothing is better in many cases, than aloes in very small doses. Cold enema are used with advantage many times. These are likewise used as cathartics, the water being quite cold and in large quantiy. Large quantities of cold water is sometimes drank to produce the same effect, and will do it; cold application externally upon the abdomen acts as a cathartic many times.

Heat may be applied locally, by the sponge bath, or hot cloths, by vapor, and by hot air. Its local application is very useful in all cases of dormant circulation, especially those attended with a dropsical state of the part, a varicose state of the small veins, such as is frequently observed in the lower limbs, and in cases of numbness, though in these it should generally be alternated with showering of the part. In the first mentioned, it should be coupled with friction, and the internal use of stimulating and alterative medicines, sarsaparilla, dock, dandelion, &c., in connexion with sulphur. In the last, viz. paralytic, or where wasting occurs, nervines are to be given. The local application of vapor to the abdomen frequently stimulates the bowels to action, when scarcely anything else will, especially if applied after the

use of cold; enema of warm water and of vapor are much used. Vapor might be made use of in some cases where nothing else would answer, as it is said it will pass the coecal valve, for the truth of this I cannot vouch; warm applications over the liver will assist very much in rousing it to action at times. Heat is frequently applied locally to the spine, as is also cold, which I did not mention in its proper place. In fever and ague, both these remedies have been tried, and found successful, but they are agents upon which much dependance cannot be placed in spinal complaints, the nature of these is so little known. In case of night sweats, they can be very much checked, or altogether prevented, by sponging the spinal region with cold water before retiring, especially the region of the loins—it must be continued for some little time. If there is inflammation or excited action in the spinal system, cold is to be used, if there is a dormant state, heat.

Heat is sometimes used as a vesicant, but it would be venturing too far into the domains of medicinal applications for me to continue the subject any farther.

Thus far, I have spoken of the effects of simple baths, with the execption of a few words said in regard to the salt vapor bath. But besides the simple, there are the perfumed and medicated.

The perfumed have no particular effect upon the system except the olfactory nerves, and through them produce a slight stimulus.

The tub bath, and vapor bath, have both been medicated with many ingredients, with the intention sometimes of merely affecting or irritating the skin, and sometimes of causing the medicating substance to be absorbed, and affect the system generally.

How medicines affect the system we cannot always ascertain, and must be content with the fact that they do. Most substances when acting upon the system through the skin affect it in the same manner as when taken internally, but sometimes the effect is modified. Many substances when taken internally derange the digestive organs, and should certainly be applied by means of the skin and lungs. Indeed, it would seem that it would be best in all cases not causing too great inconvenience to apply the medicine through the skin, but in some cases the action of the medicine is not so favorable when thus applied.

The medicated tub bath has little if any repute, except for the application of nitro-muriatic acid, the effect of which some esteem very highly. The acid is to be mixed with the water till it is as sour as vinegar, about an ounce to a gallon of water being required.

The medicated vapor baths are more or less esteemed by the public, as well as all professional men, and with the greatest justice. That medicinal substances be very finely comminuted and intimately mixed with each other, is considered very important in facilitating their action. And surely this is most perfectly done when they are vaporated, the heat of the vapor also causes them to be easily absorbed. Herb baths are held in much repute by the public, the hemlock bath in particular, being thought to have a controling power over cold, and is a very popular remedy. But these I believe are not thought by medical men to have much efficacy. As a general thing without a doubt, the virtues of herbs are not obtained to such a degree as to be beneficial. Concentrated preparations must be used for producing vapor, in many cases however, the effect of the herb is very evident; in using aconite for instance.

Other substances of various kinds have been used, but the baths of sulphur seem to have attracted chief attention, these have established their reputation for curing various skin diseases, liver complaints, scrofulas, &c. As sulphur baths are generally used, they are attended with great hazard, and must be watched with the greatest care. Arsenical preparations have also been used for skin diseases, and surprising cures have been effected by these and other fumigations, as we must believe, since those that report them are worthy of confidence. But the opportunity hitherto afforded for trying the effects of the medicated vapor bath, has been limited to a few persons, and a few substances. I hope a better opportunity is now given for trying the effects of all kinds of substances, by means of the portable bath. I shall describe in the next chapter how any substance by means of pressure may be vaporated, at any temperature, and the various ingredients of a compound can be caused to come off in vapor at the same time, and the apparatus is so portable that any physician in city or country, can make use of it in practice, with the greatest ease, By this contrivance, the virtues of the various spring waters can be made to affect the system by a vapor bath; sulphur spring water can be applied with the greatest advantage, especially when compined with its internal use. This is the best way of taking sulphur baths, but if such water cannot be obtained, let sulphur be burned over water that it may absorb the sulphurous gas, and let the water containing it be vaporated under two pounds pressure npon the piston of the "Toilet Bath," or let half an ounce of sulphuret of potash, (livor of sulphur, hepar sulphuris,) be dissolved in half a pint of water, and be vaporated in the same way, by this means, the bath can be rendered perfectly safe, while at the same time it is the most efficacious. Richfield

and Avon Springs in New York, and the Sulphur Springs of Virginia, have been much celebrated for their efficay in a great number of complaints for which sulphur is considered beneficial, but owing to the want of means for administering the virtues of the water in the form of vapor, the advantages they possess have not been appreciated so highly as they ought to be, for I believe I have seen the most undoubted proof of cures affected by the vapor of such waters produced under pressure. Saratoga waters may be administered in the same way with the greatest profit, in connexion with the proper internal use of the spring waters; I say proper, for to drink some six, eight, or a dozen tumblers of the water is enough to make a well man sick. One or two tumblers are as much as ought to be drank at once, and these should be repeated not more than twice or three times per day. The same remarks will apply to all kinds of mineral waters, or minerals dissolved in water. But before concluding the remarks to be made under this head, I would wish to draw the particular attention of the reader, to the effects of the salt vapor bath, snch as may be obtained from sea water most perfectly, but may be had by mixing one or two teaspoonsfull of salt in a half pint of water, as I believe them to be very greatly beneficial above the common simple vapor bath. Many sea captains have assured me that they never had taken cold out of sight of land, and desired to know the reason. When in factories for boiling down salt, I was told that the workmen were not subject to take cold though very much exposed, and was also told, that the vapor from the brine kettles was very effective in curing colds, rheumatism, and the like. Those things, together with the strong popular prejudice, that where the skin is sponged with salt and water, or salt and vinegar, a person was not

likely to take cold, as also the general idea, that a sea bath is more stimulating than a river bath, induced me to think that salt must possess some peculiar virtue, and as I had an apparatus by which I could produce a salt vapor, I thought best to test the thing by experiments upon myself and others; after thoroughly trying it, I am convinced that salt has very great efficacy in protecting the system, that salt vapor has great power in relieving colds, and rheumatic complaints. It will be advantageous to add salt to vapor baths of sulphur and Saratoga waters. If I should not be thought to be riding some hobby, I would say also, that several physicians have mentioned to me that in quite a number of cases they had recommmended to their patients, to eat salt as freely as they could, to carry it in their side pocket, and eat it often, and several cases of cures were stated, which if true, were very satisfactory. But I must leave this topic with saying that after coming to the conclusions I mentioned, I was highly gratified to have my opinions of salt vapor still more exalted, by the undoubted authority in its favor that I have since seen, and that it would please me to quote if my limits would permit.

"When, and how often ought a person to bathe?" is frequently asked. The shower bath should be taken in the morning, and at any time succeeding a warm tub, or vapor bath. A sea or river bath should be taken in the middle of the forenoon when the powers of the system are the highest. A warm bath should be taken about the middle of the afternoon, or, in the country, after dinner has had time to digest entirely,—in the city, about an hour before dinner, say about three o'clock. The cold sponge should be taken early in the morning. The warm sponge just before retiring at night. The vapor bath may be taken at any time except just before

and just after a repast, the middle of the afternoon is the most appropriate time as a general thing; taken half an hour, or an hour before eating dinner, it will drive away the perplexities of the mind, and shut out the anxieties of business, admirably fitting a man to enjoy the luxury of a well cooked dinner, and the agreeable chit chat of an affable family. If a person is about to seek pleasure in the gay evening party, or the convivial assembly, or if he seeks enjoyment in the more sober festivities of life, a vapor bath should be taken an hour or so before going out. If the day has been chilly or unpleasant, if a person has been exposed during a long ride, the vapor bath should be taken just before retiring. By the laborer, the vapor bath should be taken after the toils of the day are over, that he may retire to a quiet sound repose, and awake refreshed and able for the labor he is to undergo the ensuing day.

The shower bath should be taken every morning, the sea, or tub, every hot day, the warm bath, once or twice per week if taken at all, the vapor bath once per week in summer, and twice, three, or four times per week in winter. The vapor bath, and the shower, are all that I esteem as of much consequence. The shower bath should be found I think in every persons chamber, and a vapor bath should be considered as much a necessary in a family, as any piece of household furniture whatever.

CHAPTER IV.

A convénient, portable, durable, and neat apparatus, one that could be used in any room, and one that could be obtained by the means of every one, and be made a household article, has been a great desideratum.

The "Toilet Bath" seems to answer these requirements in every respect.

I was induced to invent an apparatus for vapor bathing—in the first place, because I wanted something which I could always carry with me, for I esteemed the pleasures and advantages of a vapor bath too highly to be without one; in the second place, I wished to contrive something that every body could obtain and make use of. All kinds of apparatus for this purpose that I had seen were too bulky and too expensive. I thought by applying pressure I might attain the object. Experiments were therefore made, and after many that were fruitless, the success was perfect. An apparatus was made that when packed up it could be put in an overcoat pocket, that would give a vapor bath with the greatest ease in from five to eight minutes after it was unpacked. From as small as this, to the capacity of several gallons they have been made of all sizes. The usual capacity is, from one to two quarts. In case of the large size referred to, it is used for heating the water of a warm bath as well as for vapor bathing. This piece of apparatus consists of a boiler, to which are attached legs, hoops, flanges, &c., for the purpose of supporting it, directing the flame of the generator about it, &c. Upon the top there is a cylinder with a hole in its side. Into this cylin-

der is fitted a hollow piston, but with a bottom. Heat being applied to the boiler, the vapor produced must raise the piston before it can escape by the side hole of the cylinder. About the outside of this hole there is a short tube or nose to which other tubes can be attached, and the vapor led wherever it is required. The piston can of course be weighed down with whatever weight is placed upon it, and the tensity and temperature of the vapor thereby increased to any degree. Whatever volatile substance is mixed in small quantity with one of greater stability is not allowed to come off until the vapor of the other is produced: hence any perfume mixed with water does not escape till the vapors of the water comes off, making the bath exceedingly pleasant, while taken, and delightfully perfumes the cuticle by being absorbed. The same effect is produced upon any medicament.

Farther, if any substance is mixed with the water which it is difficult to vaporate, the turbulence of the water in rapid boiling continually disseminates it, and when the piston rises under two to four pounds pressure, much of the salt will be carried with the water vapor; besides that the higher temperature thus produced will vaporate the salt in a greater degree than otherwise. By the pressure the water is made to vaporate quicker, and when the vapor comes off, its greater tensity causes it to be disseminated more rapidly through the receiver, while at the same time it is actually cooler than vapor produced without pressure, and is so when it deposites itself upon the skin, as its tendency to expand carries it even beyond the medium point. I have seen water and ice put into the boiler empty, made to boil in one minute and three quarters, and the vapor deposited upon a person in such quantity as to drip off in three minutes after he was seated in a chair and properly covered. It will usualy require three minutes to produce vapor and from five to eight to take a bath.

If it is desirable to take a medicated bath of any herb or salt which will mingle with water or the properties of which are extracted by water, let the substance be put in the boiler and the requisite pressure made upon the piston. If

it is desirable to vaporate any substance at a high or low temperature put it upon the boiler or in the piston, and put such liquid, ether, alchol, turpentine, &c., in the boiler as boils at the required degree or near it, and regulate precisely by pressure.

If it is desirable to breathe vapors of any substance, put it in the piston, to the nose of which tubes can be connected and put such liquid in the boiler as will raise the temperature of the piston as much as will be advantageous to the lungs.

If it is desirable by decocting in water, alcohol, or ether, to obtain all the medicinal virtues of any herbs, put them in the boiler and by pressure on the piston and moving the slide of the generator, modify the heat so that the piston shall not rise, but yet the contents of the boiler be kept hot, or warm.

If it is desirable to save the vapors that escape at any time from the boiler, as when ether, alcohol, &c., is used, let a tube connect from the nose of the cylinder to a bottle in a pail of water; in the same way distill.

To dry an extract, put it on the boiler and heat the top by ether, alcohol, &c., used in the boiler.

The apparatus I have spoken of, may be put under a chair, which is usually done; the nose of the cylinder towards the front of the chair, the short tube being upon the nose or if it is desirable to bring the vapor more directly upon the feet, the long tube may be put on the nose and have the short tube put upon it. A person as soon as the vapor begins to come off, should sit down in the chair the feet being upon the round of it or a stool, with his clothing entirely removed, enclosing himself with something that shall secure the vapor from escaping, come up round the neck and lie all around upon the floor. If there is no carpet on the floor a piece should be spread down: a single blanket will not suffice. People are not apt to use anything of sufficient thickness. An extemporary covering is made by using two "comfortables."

A cloak for the purpose is much better, made of Canton flannel doubled; six breadths, 2 yds. long and ¾ wide, gathered about the neck by a cord; but this will lie about the

shoulders except there is a frame something like a clothes ladder upon which it can hang. One thickness of calico and one of flannel is equally good. If the heat is too great and the vapor is generated too rapidly, the slide of the generator can be moved forward aad the weight on the piston diminished, or the bottom of the covering can be raised for a moment.

If vapor only is desired, the apparatus can be set outside the cloak and the vapor led into it by tubes, and if the smell of the burning alcohol is unpleasant, the apparatus can be placed in an adjoining apartment, in the fire-place, &c., and by nest tubes can be conducted anywhere.

A few words only are required in regard to the generator. Let a large wick that will fill the hole closely be used, projecting from half an inch to three inches, according to the heat and vapor desired; it being laid upon the wire and spread open if you wish to obtain the utmost degree of heat. Burn pure alcohol, which is put into the generator by taking out the wick, and when it is desirable to carry the apparatus in a trunk, press down the wick in a wad as it were, upon the hole, not into it, and the alcohol will not leak.

In health let the bath be taken till the perspiration begins to start upon the face, rubbing the skin the while, let then the vapor be shut off—rub the skin till it is perfectly dry—step out from the covering—wash the face, head and neck in cool water or lay a cool cloth upon the head, and all is done. If an assistant is by, the cool water may be applied to the head towards the close of the bath with great efficacy.

If it is not desirable to wet the hair, a cap can be made from a circular piece of oiled silk, half a yard in diameter, by running a tape in its edge hemmed. This will be used also in taking a shower bath and in applying vapor locally.

In sickness circumstances will govern the continuance of the bath: which can be taken in an easy rocking chair, in bed or locally applied by covering any part, since by the nest tubes as before said, the vapor can be conducted anywhere.

Thus it will be seen that the high enconium which physicians and others have bestowed upon this bath are not al-

together wanting in justice. Could it indeed be expected that one piece of apparatus should fulfill more purposes or more valuable ones, while at the same time its simplicity is its greatest merit.

In regard to the tub and shower bath, but few words need be said.

The Tub Bath consists of a frame and sack. The frame consists of four posts with end and side rails, which fasten together with thread bolts and thumb nuts distinctly marked. When it is taken down it can therefore be very snugly packed, and when put up occupies but 36 inches by 21. The sack is of India Rubber cloth, stout and durable, but at the same time flexible and packed in a small space: to this there is a false bottom inflated through a small tube, the screw of which is turned one way to allow the air to be blown in and the other to prevent its escape. The front part of the sack is covered, narrowed down and lies out from the frame several feet when it is used, by which means only a comparatively small quantity of water is required, and as the front part can be turned over the foot rail, a very excellent tub is formed in which to bathe children, or in which a person can wash himself or take a shower bath as bye and bye said. To the front part a faucett is attached with a coupling box and hose that can be used as a syphon either for filling or emptying the sack. To use this bath, inflate the false bottom, loop the sack upon the knobs of the frame, the knob in the center of the head rail receiving the hole in the head of the sack; fill the sack with the the desirable quantity of water, about 7 pails full as a usual thing will be enough, immerse the body, washing and rubbing the skin mean time, being careful not to remain so long as to produce a chill, step out and dry the skin very thoroughly with towels used briskly. If a warm bath is chosen, put in a quantity of cold water and add hot water to temper it. The sack would be injured by boiling water, but not in the least by water of 100 degrees temperature. After the water is removed the front part of the sack should be turned out that it may dry, though this is not essential except for neat people. The advantages of this tub

are self evident: it is so portable; it requires so little room, can be used in any apartment, and from its air bottom and yielding nature is so capacious, at the same time it requires so little water, and is so easy to a person lying in it, that nothing better could well be desired.

A shower bath may be by itself or in connection with the tub. When by itself, it consists of a frame two feet square usually, may be larger or smaller if desired, consisting of four posts with side rails fastened to them by bolts and nuts, as in the tub frame; in the top of the posts are holes for receiving rods which support the showering reservoir, upon the posts below are knobs for sustaining the receiver, which is looped upon them. The receiver is of India rubber cloth and possesses this great advantage, that after the bath has been taken, it can be unlooped and the corners being gathered together, the water it contains can be safely carried from the apartment. The posts of the tub bath can receive rods and the sack is a receiver to catch the water that falls. The reservoir may be of tin or copper and is provided with an axle with which it revolves, one cord attached to it being pulled to let down the water and another to suspend it. This axle may be supported in permanent sockets in which it is placed by stepping in a chair or on the side of the frame, or moveable sockets can be arranged by which the reservoir can be elevated or lowered by turning a crank, in this case the double rod with a long cord is to be inserted in the post in which is the pulley wheel, the cord being passed up over the wheel in the rod, from within out, and down under the wheel in the post and along to the pulley upon the crank to which it is to be fastened, the cord of the other rod goes over its wheel and down to the other pulley on the crank, the cords to be attached to these pullies so that when the crank turns both ends of the reservoir shall be elevated at the same time. As tastes are very different, people usually choose to make their own curtains, which are to pass down from the top of the rods to within the receiver at the bottom; if they are full and with a ruffle or fringe at the top, they look more prettily; a vallance also about the sides of the frame adds to it a neat appearence. The open-

ing of the curtain should correspond to one of the rods supporting the receiver, and if the sockets are moveable, the curtain should be ripped down corresponding to the diagonally opposite rod in length and position, and if the frame is to be used for supporting the cloak of a vapor bath, openings three inches in length sbould be made corresponding to the tops of the other posts. Calico, muslin, dimity or anything almost, may be used for curtains and will prevent the water from wetting the carpet; rings or bits of tape will suspend the curtains upon the rods. Curtains of any material or any style, if ordered, will be furnished at cost.

The advantage of this reservoir is that it can be taken out and carried to the place of obtaing water, saving the inconvenience of pitchers, pails, etc. and the serious inconvenience of spilling water upon the carpet, and by pulling the proper cord the water is instantly suspended without any dripping; and the shower can also be affixed to the tub bath with but trifling expense.

The advantage of the whole is, that it is very portable, neat as an article of furniture, and exceedingly convenient in using.

The frame of the shower or tub bath are very convenient for sustaining the cloak of the vapor bath, it being made as before said, and having hooks attached to it 22 inches from the gathering cord, at places corresponding to the posts, these hooks being hooked upon the rods through the opening in the showering curtain as before said.

If it is desirable to take a shower bath after the vapor bath, the reservoir being previously filled, spread open the top of the cloak, pull the proper cord and observe the result.

The price of this entire apparatus, is from 11 dollars upwards, according to finish and ornament; for vapor bath $2, and upwards, for shower $3,50 and upwards, for tube $5,50 and upwards. If any farther information is desired by any one, in regard there to or upon bathing, a letter post paid, wlll be immediately answered, and if containing the description of a bath wanted, its price and the money, the bath will be forwarded by the earliest and best means, to any part of the world.