Bathing considered as a means of promoting health : a lecture delivered in the Bath Saloon, Victoria Street, Glossop-Road, Sheffield, on Monday evening, May 8, 1837 / by Charles F. Favell.

BATHING

CONSIDERED AS

A MEANS OF PROMOTING HEALTH.

A LECTURE

DELIVERED IN THE BATH SALOON, VICTORIA-STREET, GLOSSOP-ROAD, SHEFFIELD, ON MONDAY EVENING, MAY 8, 1837.

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ON THE UTILITY OF BATHING,

AS A MEANS OF PROMOTING HEALTH.

It is more in compliance with the wishes of those with whom I have been associated as the Committee of this Establishment, than to gratify any vain desire of my own, that I appear before you this Evening. The proposal to deliver a Lecture on the Utility of Bathing did not emanate from me, and when first I was solicited to undertake it, I hesitated and asked time for consideration. After revolving the subject in my mind for some days, I had almost determined to decline, when I became impressed with the conviction that some good might result from drawing the attention of the public to it, and I then acceded to the request which I had received I acceded because I thought it desirable that a Lecture of the kind should be given by *some one*—because I thought that *some one* should be a Medical man, and because I had already taken a more prominent, at least a more public, part, in reference to the establishment of Baths, than any of my Medical Brethren in the town.

It has long been the strong and settled conviction of my own mind, that by far too little attention has been paid to the use of Bathing as a means of promoting health. There are many persons who enjoy the *luxury* of a Bath, but very few who reflect on its sanative agency. Great numbers are eloquent in their praise of a Cold Bath on a hot summer's day ; they enjoy the cooling and invigorating effects which result from it, but they do not regard it as a great and important remedial agent ; or if peradventure they should be willing to admit that it may be of service, under certain modifications of temperature,

in some varieties of disease, they do not contemplate its immense value as a prophylactic agent—an agent by which the health is preserved and disease prevented.

It is possible that there are some individuals who will look with a very jealous eye on the advice I am about to give you; for they will imagine that since my own private interests are not advanced by a healthy condition of the community, but are rather bound up with sickness and suffering, I shall not be very anxious to prevent the *occurrence* of disease, however glad I might be to be the agent in *curing* it. I should be far from displeased if such a suspicion should arise in the mind of any of those whom I have the pleasure to address; it would lead them to look into the matter for themselves, and I am sure they would rise from its serious contemplation more deeply convinced of its great importance than they were when they first turned their attention to it. It will be impossible for me to treat the subject fully and elaborately in a single lecture; I shall only make a few cursory remarks, but those remarks will, I trust, be according to truth. I do not wish to overrate the advantages which will result from the use of Baths—I do not wish to give an undue importance to them; my object is to stamp them with their proper value. I speak in the presence of wise, intelligent, reflecting men, and I call upon them patiently and impartially to judge what I say.

Before proceeding to the more immediate topic of discussion for this evening, I may remark, that from the earliest period of the world Bathing has been more or less resorted to, either as a luxury or a remedial agent. The Egyptians of every grade were in the habit of performing their ablutions in the Nile, and it was, as we read,* when the daughter of Pharaoh king of Egypt came down to wash herself in the river, and whilst her maidens walked along on the river side, that the future deliverer of the oppressed and groaning Israelites was discovered in his place of refuge. And even at the present day, we are told that the practice of Bathing in this

* Exodus, ch. ii., v. 5, 6.

dangerous but fertilizing stream is still continued.* In the Levitical law, Bathing is enjoined with the utmost strictness, but it is impossible that I should stop to point out the various passages in which it is enforced. I would only further remark, in reference to the Washings of which we read in the old Testament, that we should run into great and grievous error if we understood them all literally—some are ceremonial, some miraculous, some moral, some spiritual, some natural—it is evidently only with the latter that we have to do at present.

I pass on to remark that the Greeks at a very early period of their history were in the habit of using Baths, and long before Public Baths were established it was their custom to bathe in private; and I may remark that it was not only as a luxury that they thus made use of water, but also as a means of preserving or restoring health. But although the Greeks at first performed their ablutions in private, it was not very long ere Public Baths were established, which were resorted to by all classes of people. The Baths of the Grecians, however, were not only far more splendid, but also far more complex, than those which we meet with in the present day. They were usually attached to the Palestræ or Gymnasia, of which they were considered a part; they consisted of seven different apartments, separated from each other, and intermixed with other buildings belonging to different sorts of exercise; these apartments were the Cold Baths or *frigida lavatio*, the *elæothesium*, or room where the bathers were anointed with oil; here the *unguentarius* was in attendance with his long-kept oil, to which a small quantity of alkali and vinegar were usually

* "Bathing is one of the greatest luxuries enjoyed by the people of Egypt. The inhabitants of the villages of this country and those persons who cannot afford the trifling expense incurred in the Public Bath, often bathe in the Nile. Girls and young women are not unfrequently seen thus indulging themselves in warm weather, but mostly in unfrequented places. The rich have Baths in their own houses, but men who have this convenience often go to the Public Bath, and so also do the ladies. There are in Cairo between sixty and seventy Baths, to which the public have access for a small expense."—*Lane's Account of the Manners and Customs of the Modern Egyptians*, vol. ii., page 35.

added, and with this he gently rubbed the whole surface of the body; then there was the *frigidarium* or cooling room, the *propigneum* or entrance of the stove, the *tepidarium* or Vapour Bath, the *laconicum* or dry stove, and the *calida lavatio*, or Hot Bath.

The Romans followed the Greeks in the use of these establishments, but they greatly exceeded them in splendour. Here again we find that, after immersion in the Bath the bodies of the bathers were anointed with oil, or rubbed over with pumice stone and subsequently perfumed. It is difficult to conceive the degree of magnificence which the Roman Baths possessed, but we may form some faint idea of what they were, when we recollect that it was customary for the Emperors to build Baths in order that they might gain the good-will of the people; each one, we may reasonably imagine, would endeavour to outstrip his predecessor in the embellishments of an establishment which was in such high repute. We are told that the Baths of Caracalla were furnished with two hundred marble columns, and had sixteen hundred marble seats, which would accommodate eighteen hundred persons, all of whom might conveniently bathe at the same time. But the Baths of Dioclesian surpassed all the rest in splendour and magnificence, and we are informed that one hundred and forty thousand men were employed for many years in building them; they possessed more than three thousand marble seats, and were adorned with whatever could delight the eye, or in any way minister to the luxurious habits of the people. "The walls of the lofty apartments were covered with curious Mosaics, which imitated the art of the pencil in the elegance of design, and the variety of colours. The Egyptian granite was beautifully incrusted with the precious green marble of Numidia, the beautiful stream of hot water was poured into the capacious basins through as many wide mouths of bright and massy silver, and the whole exhibited a scene of pomp and luxury which might well excite the envy of the kings of Asia."* But

* Gibbon.

the Baths at Rome were not confined to a single establishment—private Baths as well as public ones abounded. Of the latter it is said there were not fewer than eight hundred and fifty-six. After this remark I need scarcely say that Bathing was universally practised by the Romans. It was not confined to any single class of the community, but all, of every grade, felt when they were debarred on any account from this healthful exercise, that they had been deprived of what was almost as essential to them as the ordinary necessaries of life. Persons of all ranks were in the habit of bathing at the same time, rich and poor, noble and ignoble mixed promiscuously in the water, and it is said that the Emperors themselves not unfrequently were found there amongst the common people. In the summer season Bathing commenced at eight o'clock in the morning, and in the winter at nine. But in the course of time it was found that a practice which in itself is both delightful and salubrious, was greatly abused—persons frequented the Baths when they were not in a fit state to use them, and it became necessary to prohibit Bathing before a certain hour in the day—that hour was three o'clock in the afternoon, and was called *hora balnei* or Bath hour. There is something almost bordering on romance in the idea of all the splendid Baths in Rome, of which it is said "those of the Plebeians were ornamented with silver pumps, and the freedmen trod on gems," being opened at the sound of a bell, which tolled at a certain hour every day—multitudes of persons of every class thronging to these favourite places of resort, and in an inconceivably short time the young and the old, the grave and the gay, the humble and the mighty, all luxuriating together in one common source of healthful pleasure. But long before the establishment of Public Baths at Rome, the ancient Romans, who were engaged in agricultural pursuits, were in the habit of washing their legs and arms every night before they sat down to supper, and every ninth day they made a point of bathing in the Tiber, or some other river whose locality might be more convenient for them. It would be well if the labouring classes of our own day

would learn a lesson from these classic times, and be rather more lavish in the use of water to the surface of their bodies. There are sadly too many who take special pains to wash their *insides* with what they know to be positively injurious, whilst they almost entirely neglect that external ablution which would not only greatly improve their appearance, but more than correspondingly benefit their health.

It is time, however, that I should proceed to prove that the health may be benefited by the use of Bathing, or to adopt the advertised title of the present address, to show "The utility of Bathing as a means of of promoting health." I remark then, in the first place, that there are various descriptions of Baths which may be made use of with equal advantage under somewhat different circumstances—there is the hoth bath, the warm bath, the tepid bath, the cold bath, the shower bath, and the vapour bath. With the peculiarities of the vapour and shower bath I presume you are all acquainted. A Bath is called *hot* which has a temperature ranging from 98 to 106° ; *warm* when the temperature is between 92 and 98° ; and *tepid* from 85 to 92°. When the water is below the lowest range of the tepid scale, the Bath is said to be a *cold* one.

But, before speaking of the peculiar merits of the different kinds of Baths, I will make some observations on the necessity of general ablution ; by which I mean that the application of water should not be confined to the parts of the body which are exposed to the view of others, but that it should be to the entire surface. I need scarcely say, that it will be most effectually applied by Bathing, but that, if persons are so situated as not to be able to make use of a Bath, sponging, with water or salt and water, ought to be regularly employed as a substitute.

There are very few persons who are aware of the intimate connexion which subsists between the healthy action of various internal organs and the state of the skin. The manner in which these parts sympathise with each other, both in health and disease, is very remarkable ; and it is in consequence of this, that we find attention to the latter so

frequently improving the condition of the former. Let me, then, for a short time, draw your attention to *the functions of the skin*, for, without doing this, it is impossible that I should make myself perfectly intelligible to a non-medical audience.

The skin is composed of three distinct coats or layers. The first is the *Epidermis*, or scarf-skin. This is the outermost layer. It is extremely thin, and possesses neither blood-vessels nor nerves. It is this part which is raised by the action of a blister. If a person should say that he had got his hand scalded, and covered with a blister, he would mean that, from some specific cause, this outermost coat of the skin was raised, by the effusion of some fluid beneath it. The Epidermis is perforated by an immense number of small foramina, through which the perspirable matter escapes. I need not enter more at length into its nature and uses. The next coat or layer is called the *Rete mucosum*, and is the seat of the colouring matter in Negroes. The third coat is the *Corion*, or true skin. This membrane is extremely vascular, so that it is impossible to pierce it, with the point of the finest needle, without drawing blood: it is also largely endowed with nerves. The two facts, however, which I wish chiefly to be borne in mind at present are, the vascularity of the Corion, and the porosity of the Epidermis.

1st. With respect to the vascularity of the Corion. At every period of life, when the system is in a healthy state, there is a considerable quantity of blood circulating in this structure, although at every period there is not *the same relative proportion:* it is much greater in infancy than in adult years. As life advances, we find the blood gradually withdrawn from the surface of the body, in order that it may supply the increasing demands of the more important internal viscera. The skin, in one sense, may be regarded as *a depository for the surplus circulating fluid*, and a demand from time to time is made upon it, in order that the exigencies of other parts may be supplied. But the vascular system must be looked upon as *a whole;* we can have no just idea concerning it, so long as we merely contemplate one particular subdivision. The dif-

ferent veins and arteries are, either directly or indirectly, connected with each other; they are all parts of a system, and they are constantly affording evidences of the sympathy which subsists amongst them. The finest artery which ramifies on the surface of the Corion has a connexion, easily to be traced, with the great blood-vessel which receives the blood directly from the heart. I may illustrate this by what, doubtless, most of you have observed in cases of Fever. At one period, the person is cold and shivering; creeping as close to the fire as he possibly can, and still unable to keep himself warm. That part of the body which has been next the fire is burnt, (just on the same principle as a piece of wood would be burnt, if it were placed close to a fire,) but there is no heat diffused over the surface generally. If you examine the skin, it is pale and shrivelled, and exhibits that peculiar appearance, with which most persons are familiar by the name of *goose-skin*. At this time, the vessels of the Corion are comparatively empty, and those of some of the internal viscera are morbidly congested. But, after a while, a change is observed: the patient is no longer hanging over the fire, to catch every particle of radiated caloric; the pulse at the wrist, which before was feeble and languid, becomes full and bounding; the face has acquired an unnatural flush; and the skin is hot and dry. The congested vessels are relieved, and the blood flows freely through the capillaries. Now the blood-vessels themselves are acted upon by external agencies with great facility; and we consequently find that the condition of the circulation is easily affected by heat and cold. Whenever the body is subjected to a high temperature, the capillary or external circulation is increased; but whenever, on the contrary, it is subjected to cold, a quantity of blood (more or less, according to the reduction of temperature) is driven from the surface upon some of the internal organs. I need scarcely remark, that the continuance of health depends upon the proper relative proportion of blood circulating on the surface, and in the internal viscera. And it is, perhaps, altogether unnecessary to observe, that the same general effects are produced

by heat and cold, by whatever medium they may be applied to the body. These effects, however, are not produced in the same *degree* by the different media which may be employed, for example, by solids, fluids, and gases; because substances in these different mechanical states do not possess the same degree of conducting power. But I must bring these remarks to bear on Bathing. Whenever the body, at a given heat, is immersed in water of a lower temperature, a quantity of blood is driven from the surface into the more internal vessels. Whenever, on the contrary, the body is immersed in water at a temperature higher than itself, a quantity of blood is, as it were, drawn from the internal vessels to the skin. Nothing is more common than to act, on a limited scale, on the principle which I am now explaining. For instance, if a person is labouring under headach, and there is great heat in the forehead, he at once applies a cold wet cloth to the heated part, and by this means relieves the tension of the small capillary arteries. Again, when a person has taken cold, and has slight fever, with headach, pain in the chest, or cough, the common domestic remedy is a pail of hot water, into which the feet are to be put, immediately before going to bed. The hot water draws the blood, as it were, from the head, or from the chest, towards the extremities. The internal vessels are relieved; the circulation in the skin becomes more vigorous; after a while, perspiration breaks out, by this the system is still further relieved; and, in the morning, he finds himself much better. It appears, then, that warm or cold Bathing may be exceedingly useful *as a means of equalizing the circulation*—regulating the proportion of blood which circulates in the internal and external vessels. To this branch of the subject, I shall have to revert very shortly, when I come to sketch the peculiar circumstances under which the different kinds of Baths should be employed.

The porosity of the Epidermis should next engage our attention, but the necessity for these pores (the very existence of which, however, has been denied) will be so apparent, when we are speaking of the first of the func-

tions of the skin, that I shall not enlarge upon it at present.*

The skin may be considered as an exhalent of waste matter from the system; as a joint regulator of the heat of the body; as an agent in absorption; and as the seat of sensation. For a few moments, let us consider it in each of these characters. 1*st. As an exhalent of waste matter from the system.* You are doubtless aware that one of the most important excretions of the body is *the perspiration.* I allude to this when I mention the exhalation of waste matter. Now the perspiration is separated from the blood by the vessels of the skin, that is, of the Corion, and it subsequently passes through the pores of the Epidermis, and appears on the surface of the body. Sometimes, for example, in hot weather, or during violent exercise, the quantity of perspirable matter which is separated is very evident—we see it hanging in drops on the forehead. But, perhaps, every one is not aware that, throughout the whole day, under ordinary circumstances, and when the body is in health, this excretion is constantly going on, and a considerable quantity of matter is passing from the body in the form of *insensible perspiration*—insensible, because it is not appreciated by our senses; it cannot be seen. I shall not attempt to tell you the quantity of *sensible* perspiration which escapes from the body

* "The Epidermis, being homogeneous in structure, is supposed by many to be merely an exudation of albuminous matter, and although depressions are obvious on its surface, and exhalation and absorption are proved to be carried on through its substance, it is still in dispute whether it be actually porous or not. Probability is in favour of the affirmative, and the circumstance of the pores not being visible is no proof of the contrary, for the cuticle is so elastic, that it may be perforated by a needle, and yet the hole not be discernible under the microscope. *The question is, however, of little moment, provided it be remembered that its texture, whether perforated or not, is such as to admit of exhalation and absorption taking place through its substance*"—*Combe's Principles of Physiology applied to the Preservation of Health.*

If, then, the doctrine of porosity, which is assumed in the following observations, be incorrect, the reasoning which is founded upon it will still be just and applicable, for *whatever would be sufficient to obstruct the pores would also be sufficient, by covering the Epidermis, to prevent the escape of the perspirable matter.* Any person who objects to the term *porosity*, has nothing to do but to substitute *permeability* for it.

dnring twenty-four hours, because, as I have before hinted, this must be influenced by a variety of circumstances, to two of which I have already alluded. But I may briefly state, that the quantity of *insensible* perspiration is considerably greater than most persons would imagine. There have been many experiments on this subject, the details of which I need not enter upon, but I will briefly mention the results. The learned and indefatigable Sanctorius experimented on himself for a period of thirty years, and he ultimately came to the conclusion that, out of every eight pounds of substance taken into the body, five pounds passed out again by the skin, in the form of insensible perspiration. This estimate, however, is not correct. The subject has subsequently been investigated by several eminent physiologists, to only two of whom, however, I shall at present allude, viz., Seguin and Lavoisier. The former arrived at the following conclusions: "That the *largest quantity* of insensible perspiration from the lungs and skin together, amounted to 32 grains per minute, $3\frac{1}{4}$ ounces per hour, or 5 lbs. per day. Of this, the cutaneous perspiration constituted three-fourths, or 60 ounces in twenty-four hours. The *smallest* quantity observed amounted to 11 grains per minute, or one pound eleven ounces and a half during the twenty-four hours, of which the skin furnished 20 ounces. The *medium or average* amount was 18 grains per minute, of which 11 were from the skin, which would make about 33 ounces in twenty-four hours." Lavoisier's estimate is scarcely so high as this. He gives 20 ounces as the average quantity of insensible perspiration which passes from the skin in the course of twenty-four hours. But even let us take the lowest estimate, and let it be borne in mind that every twenty-four hours, twenty ounces of waste matter are removed from the system by the cutaneous vessels, and removed in such a way that we are not cognizant of the fact. The quantity exhaled increases after meals, during sleep, in dry warm weather, by friction, or by whatever stimulates the skin. In chemical constitution, it differs from the blood. According to Thenard, it consists of water, acetic acid, chlorides of

Potassium and Sodium, earthy phosphate, oxide of iron, and animal matter. Now, in order that the proper and natural quantity of insensible perspiration be separated, two things are essential: first, that there should be the proper and healthful quantity of blood circulating in the vessels of the Corion; and secondly, that the pores of the Epidermis be open. I have already endeavoured to show how the former of these necessary conditions is influenced by external agencies in general, and by warm and cold Bathing in particular, so that I need not further enlarge on it at present. I proceed to remark, then, that whatever to any extent obstructs the pores of the Epidermis, to a similar extent obstructs the excretion of the insensible perspiration, and deranges the healthy functions of the skin. I shall not occupy your time by endeavouring to detail to you the various means by which such obstructions may be caused, I rather prefer confining myself to two remarks: First, *That they may be occasioned by impurities floating in the atmosphere.* We know very well that the air holds a considerable quantity of foreign matter, which, from time to time, is partially deposited on surrounding objects. I am sure I need not dwell upon this fact; the fuliginous atmosphere, by which we are encompassed, every day furnishes us with evidences of its truth. Now the atmosphere either has or ought to have access, more or less directly, to every part of the body, because, if it have not, the insensible perspiration cannot be carried off; and, if it have access, then it is occasionally depositing some of its impurities on other parts besides the hands and face. It is true that the hands and face will become most soiled, because they are most exposed. This atmospheric precipitation, then, may be of sufficient extent either partially or entirely to obstruct the pores of the Epidermis, so that the insensible perspiration, after having been duly secreted, cannot be thrown from the system by its natural outlet.

Secondly, I remark *that the insensible perspiration is carried off from the body by the process of evaporation.* But you will recollect I told you that this secretion consists not merely of water, but that it holds several salts in solution. Now a fluid which holds a salt in solution is

not evaporated with the same facility as one which does not contain any saline matter; and the whole of the saline matter, moreover, does not pass off in the form of vapour, but part is left as a deposit—a sediment, if you choose to call it so. Thus what is called Bay Salt is the saline matter which is deposited by sea-water, which had been received into reservoirs, and allowed to evaporate spontaneously; and so it is with the insensible perspiration, the watery portion passes off in vapour, but the salt is deposited on the skin. Suppose a person never practises general ablution, the pores in this manner become gradually more and more obstructed, and a corresponding impediment presents itself to the discharge of this important function. But what are the evils which would be likely to result from the interruption to the function of which I am speaking? These evils are serious, and far too many for me to enumerate at present. I can only very briefly allude to one or two.

1st. *General Plethora might be occasioned;* by which I mean a redundancy of blood circulating in the system. You are perfectly aware that the various secretions are formed from the blood, and, therefore, that they are a means of lessening the amount of circulating fluid. If, however, any interruption be afforded to the formation of these different secretions, there must, of necessity, be a greater quantity of blood circulating in the vessels than is usual, and, just in that proportion, we have a departure from a state of health.

But, 2dly, *by such an interruption as I am speaking of, we may have a variety of local diseases induced.* When any of the secretions are either partially or entirely suppressed, the increased quantity of circulating fluid is not the only evil consequence which results, but we find either that the blood is not equally distributed to the various parts of the body, or else that the vessels in some particular organ or organs are not able to bear the increased distension to which they are subjected, and hence a variety of morbid affections are occasioned. We find, moreover, that some persons are constitutionally more liable to one kind of disease than another. One man, for example, is more

subject to Rheumatism, another to Pleurisy, and a third to some affection of the Brain. Suppose these three persons were all exposed to the same exciting cause of illness, and that they all three became ill, most probably they would all be differently affected. Thus it is also with persons who labour under suppressed perspiration. How many different kinds of illness do we meet with, which are altogether attributable to this very cause! Nay, I might ask, of how many deaths has it been the agent! An individual, for instance, greatly overheats himself by walking, and, urged by a feeling of fatigue, towards the latter end of his journey, he gets on the top of a coach, or into an open carriage of some kind. The body is then in a state of inaction; the perspiration soon becomes checked by the wind which he meets, and the next day he finds that he has taken cold; and probably these symptoms of cold are the forerunners of a serious illness. Every body will admit that it is extremely dangerous to check free *sensible* perspiration; but not only so: it is equally fraught with danger either partially or entirely to suppress the *insensible* perspiration. I think this must be admitted in a moment, when you recollect the quantity of fluid which, by this means, is daily separated from the system. I have already observed, that the nature of the disease which will be occasioned will vary in different individuals. For one moment, allow me to notice one or two of the more ordinary cases.

1st, then, I would mention *Cutaneous affections*. Who has not heard of persons being troubled with eruptions on the face or on the body, after drinking a quantity of cold water, whilst the skin was damp with perspiration? Now eruptions are not only unsightly to friends, but they are generally exceedingly unpleasant to those who are affected with them. To that portion of the community whom we emphatically and most correctly designate the *fair sex*, they are sometimes a complete torment. The nice proportions of each well-formed feature are not perceived, in consequence of some unfortunate blotch or ruddy pimple, which most provokingly occupies a prominent place. *It* is sure to be seen, and the face which we should other-

wise have gazed on with delight and admiration, we now turn from with a feeling of pity or disgust. Blotches, pimples, and the various kinds of eruptions which we are in the habit of seeing, usually arise either from a disordered state of the stomach, or from some obstruction to the transit of the insensible perspiration. Either it is not secreted in proper quantity, or it cannot pass freely through the pores of the Epidermis. The most likely means of preventing cutaneous diseases, and the best means of curing them, in by far the majority of cases, is warm or cold Bathing: *warm*, if there is a want of circulation in the vessels of the skin, and *cold*, if they depend simply on the obstruction in the pores.

2dly, I mention *diseases of the Lungs*. Persons generally are not aware of the degree of sympathy which subsists between the lungs and the skin; but I am satisfied that a great deal of pulmonary complaint would be escaped, if general ablution were more commonly performed. Many cases of constriction across the chest, difficulty of breathing, and cough, would be altogether prevented, if persons would bathe habitually, and be careful to regulate the temperature of the Bath according to circumstances. And I would even go farther and declare my firm conviction that many cases of Consumption would be either altogether prevented, or, at any rate, the accession of the disease greatly protracted, if a system of warm and cold Bathing were regularly and judiciously to be employed. Congestions of blood are very apt to take place in the lungs, and, just in proportion as you excite a flow of blood to the surface of the body, you relieve the loaded pulmonary vessels, and prevent congestions occurring. Who has not witnessed, both in children and adults, the relief which has been afforded to oppressed breathing, by the occurrence of free perspiration? But it is not *warm* Bathing alone which is serviceable to persons predisposed to affections of the chest—tepid Baths and cold Baths are also exceedingly valuable, as a means of keeping the skin in a healthy condition. Warm Bathing may probably be most useful when disease has set in; but our object ought to be to prevent its inroad, and this, I repeat, we should

often be able to do, were we sufficiently attentive to the state of the skin.

3dly, I may mention *Dyspepsia*. Almost every body knows something by experience of the unpleasantness of Dyspepsia. I shall not describe its symptoms: the very mention of the name will be sufficient to call up a faithful portraiture of its horrors to the minds of many of its subjects. The stomach sympathises most deeply with the skin, and the skin with the stomach. The mention of a single fact will be sufficient to show the truth of what I am stating. When the stomach is nauseated, the skin is pale and cold: and nettle-rash is frequently the consequence of indigestion. If, then, the sympathy between these parts be so great and so direct, it is not surprising that attention to the one should have so great an influence on the condition of the other. To the Dyspeptic, then, I say, carefully regulate your diet, daily take sufficient exercise, and habitually repair to the Bath, and, believe me, you will but very rarely have occasion to consult your Physician.

4thly, I may mention *Nervous complaints*. This class of diseases is a very extensive one. I shall not attempt to enumerate its varieties. I will only remark that Bathing, either warm, cold, or tepid, may be had recourse to with advantage, in almost every variety of this Protean malady, from Hypochondriasis to Hysteria. It may be beneficially used either as a preventive or a curative means. When persons are suffering from what we call *low spirits*—when the world seems a blank to them—when old friends are forsaken, and old amusements abandoned—when the beauties of nature and the wonders of art alike lose their interest—when the grasshopper is a burden, and the softest notes of melody are harsh and discordant to the ear—when the eye has lost its wonted speculation, and, in restlessness and weariness, every morning the melancholy patient exclaims, "Would God it were evening!" and every evening, "Would God it were morning!"—there is generally some degree of congestion in the internal blood-vessels. This unhappy state is not imaginary. The disorder is usually not confined to the mind;

the bodily health is deranged, and it is by attending to this, most commonly, that persons are restored to cheerfulness and society. No disorders are less generally understood than those to which I am referring: none are so bad to bear, and yet excite so little sympathy. And though, to a sensitive mind, it is painful to see a fellow-creature thus suffering, it is yet delightful to be able to

> "Minister to a mind diseased—
> Pluck from the memory a rooted sorrow—
> Raze out the written troubles of the brain,
> And, with some sweet oblivious antidote—
> Cleanse the full bosom of that perilous stuff,
> That weighs upon the heart."

The connexion between the mind and the body, we know, is most intimate: the one cannot be affected without the other to some extent suffering with it. What the nature of this connexion is, it is not my intention to investigate; it is sufficient for me at present to know that it exists. I must beg you to bear this relation constantly in remembrance, and, at the same time, to recollect that the various parts of the body are most wonderfully, but at the same time most beautifully, associated together. Every individual part is the centre of a circle of sympathies, and the whole animal economy is but a circle of still larger dimensions, within which all the smaller circles are contained. The heart and the stomach—the stomach and the brain—the brain and the lungs—the lungs and the skin, are all most intimately linked together, and we constantly see the functions of one impaired when another is disordered. It cannot, therefore, excite the astonishment of a reflecting mind, when I affirm that many of those who are occasionally subject to lowness of spirits, would most likely be spared the bitterness of many a weary hour, by a judicious use of Baths.

I might greatly extend my remarks and illustrations on this part of my subject, but I forbear. I think I have already said enough to show, that very numerous and very serious maladies may arise from a want of attention to the skin—from a neglect of general ablution; and that some persons will suffer from one kind of

disease, and some from another, simply because they are not all equally predisposed to the same complaint. But I have as yet only spoken of the consequences of suppressed insensible perspiration, so far as they result from an undue quantity of blood circulating in the system, and causing either general Plethora, or local determinations. For one moment, however, let us take another view of the subject. Let us suppose that the insensible perspiration is abundantly secreted, but that, in consequence of some mechanical obstruction, it cannot pass through the pores of the scarf-skin: then what would be the result? Why we should either have a variety of Dropsy induced, or we should have the perspiration absorbed, and once more carried into the mass of the blood. But then you will recollect that, in chemical constitution, it no longer is analogous to the circulating fluid. It, therefore, acts as a foreign body; the whole circulating system is disturbed by its presence, and we have either general fever or some local disorder brought on—the local mischief being determined, as in the cases already considered, by some peculiar predisposition. Now I have previously remarked, that these little pores, of which I am now speaking, are very frequently either partially or entirely obstructed by atmospheric precipitation, or by the saline matter, which is left on the skin when the watery part of the perspirable matter is evaporated. I need not then again repeat, that nothing is so likely to prevent obstruction as the frequent use of the Bath.

I have, as yet, altogether confined your attention to *one* of the functions of the skin, and I have endeavoured to show what numerous evils may arise when it is interrupted in the exercise of that function. I cannot now dwell at length on the remaining functions. I shall only just mention them, and make one brief remark upon them. I proceed, then, 2dly, *to notice the Skin as a joint regulator of the heat of the body.* The subject of animal heat, you are aware, is full of interest; its discussion, however, could not be entered upon at present. I shall only remark, that the evaporation of the perspiration is a very important means

of regulating the temperature of the whole body. Evaporation, you are aware, invariably causes cold; it requires a much higher temperature under ordinary circumstances to maintain a body in a state of vapour, than in a fluid state, and, therefore, in order that the perspiration may pass freely from the body, it robs the body of a quantity of caloric, by which means the temperature is reduced. In fact, the evaporation of the sensible and insensible perspiration reduces the temperature of the body just on the same principle as wine coolers prevent wine from becoming heated, although it is placed in a hot room or before a fire. And any thing which interferes with evaporation is a means of increasing the heat of the body. Hence it is that we feel so much more oppressed when the air is moist, than when it is dry, although the temperature may be the same; and hence again we feel much cooler on a windy day than on a calm one, although both may really be of the same degree of heat. In fevers, the skin is hot and burning—it is also *dry;* there is no moisture to evaporate. But most people who have ever had a fever, will recollect the relief they experienced when the constriction of the vessels was overcome, and free perspiration appeared on the surface. In order then that the skin may assist in regulating the heat of the body, we should take especial care to keep it in a healthy condition.

3dly. *The Skin is an agent in Absorption.*—I am perfectly aware that the doctrine of absorption by the skin has been controverted. I am aware that at the present day it is by no means generally admitted. I am aware that no absorbents are met with in the epidermis, and I will not quarrel with any man about the name to be given to the fact for which I contend, viz., that substances will pass through the scarf-skin, and find their way into the system. Call it endosmosis, imbibition, or any thing else, I am willing, provided you admit the fact. At one period it was customary to immerse the body in a Milk Bath, in order that it might be nourished when, in consequence of disease, a proper quantity of nutriment could not be taken in the ordinary way. Milk Baths,

however, are now fallen into disuse, because only a very inconsiderable quantity of nourishment can by such means be afforded. It has frequently been proposed to introduce medicinal substances into the system by means of Baths—every one has heard of Medicated Baths. But whilst I admit that different fluids do pass through the skin, I yet have no confidence in the utility of Medicated Baths, because, even granting that some of the medicine may be absorbed, I am not acquainted with any means by which the quantity can be regulated; and I know it is of as much consequence to regulate the *dose* of a medicine, as to decide upon what drug should be administered. Medicated Baths, then, I generally regard as *traps to catch the unwary*.

4thly. *The Skin is the Seat of Sensation.*—On this division of the subject, however, I have not time to enlarge. I may only remark that we sometimes have the sensibility morbidly acute, and at others morbidly obtuse; in order to have it in a healthy condition, it is essential that great attention should be paid to the state of the skin.

In thus drawing your attention to the utility of Bathing, it will be perceived that I have almost entirely confined myself to the consideration of it as a *preventive* means. It was my intention subsequently to have spoken of it as a *curative* means, but I find that I have already drawn so largely on your time, that instead of enumerating the various diseases for which Baths of different temperatures would be useful, and explaining to you the principles on which they are employed, I must content myself with a very few general remarks. We are informed that the first person who prescribed Baths medicinally was a celebrated Soothsayer and Physician, of whose achievements we read in the Greek Mythology. It is said that when the daughters of the king of Argos were labouring under the combined influence of melancholy and leprosy, Melampus ordered Bathing as a remedy; and we are told that his treatment was successful. But even granting that this is fabulous, we know that, at a very early period of the world, ablution was employed in cases of cutaneous affection. If we refer to the Levitical

law, we shall find the most strict injunctions laid down on this subject. We know that the leprosy was one of the diseases with which the Jews were most sorely afflicted; that it was one which they regarded with the greatest abhorrence and disgust, and that the most prompt measures were enforced to effect a cure. Now we read that in order that the plague might be discerned, and a proper treatment recommended, recourse was had to ablution, and in the cure of the disease the external application of water was also employed—"he that is to be cleansed shall wash his clothes and shave off all his hair, and wash himself in water, that he may be clean; and after that, he shall come into the camp, and shall tarry abroad out of his tent seven days. But it shall be on the seventh day that he shall shave all his hair off his head and his beard and his eye-brows, even all his hair he shall shave off, and he shall wash his clothes; also he shall wash his flesh in water, and he shall be clean."*—And in other diseases besides leprosy, we find the same means employed, as for example in what is called "an issue"—into the nature of which, however, it is not expedient for me to enter at present; but we read that "when he that hath an issue is cleansed of his issue, then he shall number to himself seven days *for his cleansing*, and wash his clothes and bathe his flesh in running water, and shall be clean."† This disease seems to have been a contagious one, and we find that whenever a person had been in even the slightest degree exposed to the danger of contracting it, he was required to make use of preventive measures, the most powerful of which seems to have been Bathing. Thus whoever sat on the bed whereon the patient lay—whoever touched his flesh, or in fact touched any thing which the diseased had touched, was required to "wash his clothes and bathe himself in water." But it is quite impossible for me to dwell on this interesting topic. I must pass on, without further comment or introduction to the few general remarks to which I have already alluded, and without which, however imperfect

* Leviticus, ch. xiv., v. 8, 9.

† Leviticus, ch. xv., v. 13.

this essay will ultimately be, it would be more imperfect still.

1. *With respect to the use of the Cold Bath.*—Let it be borne in mind that I am now speaking of the use of Baths by persons in health. The Cold Bath may be used not merely for the purpose of ablution, *but as a tonic to impart strength to the Constitution.* Persons usually experience a delightful glow over the whole surface of the body after the process of Bathing, and it is very desirable that this glow should always be felt, for if it be not, the probability is that the Bath will be prejudicial—the glow depends on what is called *re-action.* I have previously stated that when the body is immersed in water of a lower temperature than itself, a large quantity of blood is driven from the surface towards the internal vessels. Now the re action is caused by the blood returning again from the internal vessels into the vessels of the skin, and circulating there with increased force. Whenever, therefore, you have not the glow, its absence is an indication of a loss of tone in the vascular system, and it would be dangerous to repeat the experiment of cold Bathing, because a congested state of the internal vessels would probably be occasioned, from which the most serious consequences might possibly result. But so long as the glow follows the immersion, you may be satisfied that Bathing agrees with you—you need have no fear or apprehension, and the only thing I would suggest is the free use of a *coarse towel.* A coarse towel is infinitely preferable to a fine one, for the friction assists the action of the vessels of the skin. Perhaps it will be asked, "*How long shall we stay in the Bath? and what time of the day is the most proper to make use of it?*" To the former of these questions I reply, that the period of remaining in the water must depend upon circumstances. Some persons are able to bear it much longer than others; but, as a general rule, I should suggest that from ten minutes to a quarter of an hour is quite long enough. I believe that many of the benefits which would result from cold Bathing are prevented, by persons remaining too long in the water: some degree of exhaustion follows,

and sufficient re-action cannot be established. Now it is exceedingly injudicious for persons to remain in the Bath till they feel even the slightest symptoms of exhaustion. They do not know what serious risks they run. When a person first commences the practice of cold Bathing, he should stay in the water only a very short time. It would be better merely to plunge in, and then come out again. Afterwards he will be able to remain in a much longer period with impunity. *With respect to the time of day*, I may remark, that it is of little or no consequence what time is selected by persons in robust health, but those who are delicate should select the forenoon: it is then, usually, that the circulation is in the greatest vigour. But no one should go to the Bath soon after having taken a meal, because there is a particular condition of the circulation required during the process of digestion, with which it is not prudent to interfere. But, again, some persons will ask whether there is not considerable danger from going into the Bath whilst you are overheated. To this I reply, that I conceive it depends upon whether you are fatigued as well as overheated. I do not apprehend danger from plunging into cold water when the body is overheated, provided there be not accompanying fatigue. We know very well that, in some countries, there is nothing more common than to plunge into a cold Bath, whilst the body has purposely been brought into a state of perspiration. For instance, in Russia they are in the constant habit of using the Vapour Bath, and, whilst the perspiration is flowing from every pore, they roll themselves in the snow; and yet the practice cannot be extensively prejudicial, or it would not be so commonly adopted. I confess, however, that I should not recommend any of you to follow this example. I may, perhaps, make myself more perfectly understood on the point now under consideration, by a brief quotation from the work of a very eminent Physician,* who paid considerable attention to the effects of cold water on the system:—"On the 1st of September, two students of medicine, at Edinburgh, set

* Dr. Currie. See "Medical Reports on the Effects of Cold Water."

out on foot on a journey, a considerable part of which lay along one of the rivers of Scotland. They started by sunrise, and proceeded with alacrity during the cool of the morning. At the end of eight miles they breakfasted, rested for an hour, and then resumed their journey. The day grew warm as it advanced; and, after a march of eight miles more, they arrived, heated but not fatigued, on the banks of the river, about 11 o'clock in the forenoon. Urged by the fervour of the day, and tempted by the beauty of the stream, they instantly stripped, and threw themselves into the river. The utmost refreshment followed, and, when they retired to the neighbouring inn, this was succeeded by a disposition to sleep, which they indulged. In the afternoon they proceeded on their journey, and travelled sixteen miles further at a single stretch, and arrived at the inn where they were to sleep, a little after sunset. The afternoon had been warm, and they perspired profusely, but the evening was temperate, and rather cool. They had travelled for some miles, and arrived at the end of their journey stiffened and wearied with their exercise. The refreshment which they had experienced in the morning from Bathing, induced one of them to repeat the experiment, and he went, perfectly cool, into the same river, expecting to relax his limbs in the water, and afterwards to enjoy profound sleep. The consequences, however, were very different. The Tweed, which was so refreshing in the morning, now felt extremely cold, and he left the water hastily. No genial glow succeeded, but a feverish chill remained for some time, with a small frequent pulse, and flying pains over the whole body. Warm liquids and friction brought on at length considerable heat, and towards morning perspiration and sleep followed. Next day, about noon, they proceeded on foot, but the traveller who bathed in the evening was extremely feeble, and (though they had to perform a journey of a single day only) was obliged to take the assistance of a carriage; and it was several days before he recovered his usual vigour." Now I consider this to be a case in point, and I will only add to it by stating that some years ago, when, in company with a

friend, I was making a tour of the Highlands of Scotland, I once or twice, during the heat of the day, undressed on the bank of some beautiful river, along which we were walking, and plunged into the stream; and I do not remember that I experienced anything more delightful or more refreshing, during a long walk of forty miles. On the subject of the Cold Bath, I will only further observe, that I do not consider it generally applicable to persons advanced in years, or to very young children. I should object to the Cold Bath for old people, just on the same principle as I should object to its use by very feeble persons—re-action does not follow it with sufficient vigour I think that, generally speaking, such individuals as I am alluding to, should either make use of Warm Baths or of Tepid ones. But, of course, there are peculiarities of constitution which justify, if they do not even *demand*, a departure from a general rule. And with respect to very young children, I may observe, that the practice of immersing them in cold water for the alleged purpose of *hardening* them, is cruel, absurd, and pernicious. We are told that such a practice was followed by some of the nations of antiquity—the Spartans, for example—but their only excuse was their utter ignorance of the laws which regulate the animal economy.

My remarks on the use of the Warm Bath must necessarily be exceedingly brief, not because I think it of inferior importance, but because I fear, were I to enter fully upon it, I should exhaust that patience upon which I have already too largely drawn. I shall, therefore, only stop to endeavour to remove a prejudice which I have frequently heard brought against it. *It is commonly thought to weaken the body.* Now the moderate and judicious use of the Warm Bath is not calculated to cause debility; its effects, on the contrary, are tonic. But Bathing, like all other things, may be abused; and therefore, whilst I contend that it may be employed with the utmost benefit, I at the same time admit that its injudicious and intemperate use may produce very serious mischief. The Warm Bath may be so used as to be either tonic or sudorific, or directly debilitating, and the precise

effect which ensues will depend materially on the temperature of the water, and the length of time a person remains in it. Medical men know very well that they can produce extreme exhaustion simply by such means. If, for instance, we wished to have the debilitating effects of the Bath, we should have the temperature at 98°, and keep the person immersed for about three-quarters of an hour; if we wished to have the sudorific effects, we might have the water at the same temperature, keep the person in for half an hour, and then put him to bed; or if we wished to have the tonic effects, the temperature of the water might still be the same—or a little lower, 94° or 96°—the person should not remain in more than a quarter of an hour, and afterwards should either be well rubbed for a considerable time, with a coarse towel, or, after moderate friction, should take a brisk walk. I shall only further state, that there are two classes of persons who would be likely to be materially benefited by the use of Warm Baths, viz., such valetudinarians as cannot take exercise, and persons deeply engaged in literary pursuits. One great object of exercise is to promote the proper circulation of the blood; and, in both the cases to which I now refer, we constantly find congestions taking place in some of the internal viscera, and a great variety of anomalous pains and complaints ensuing, simply from inaction—the vessels lose their tone—the circulation is irregular, and first one organ, and then another, becomes impaired in its functions, in consequence. Now warm Bathing would promote the free circulation of the blood; it would obviate the congestions of which I have been speaking, and thus be conducive to the comfort and health of the individual. When noticing the Cold Bath, I remarked, that persons ought not to make use of it when they are suffering from great bodily fatigue, and I gave you an example of its prejudicial effects when employed under such circumstances. But I have no such warning to give with respect to the Warm Bath. If the young man who injudiciously plunged into the Tweed in the evening, had indulged in the luxury of a Warm Bath, far different consequences would have ensued to those which he expe-

rienced: the circulation would have been equalized, the rigid limbs would have been emolliated, the tired muscles would have been relaxed, gentle perspiration would have been induced, and refreshing sleep secured. Do you suppose I overstate the case? Let me, then, in confirmation of what I say, appeal to the experience of every one who has bathed his wearied limbs in water; or let me refer you to travellers, who are almost constantly in the habit of using a Warm Bath, after the fatigue of a long journey. But it is impossible for me to enlarge.

Shall I make a single observation on the *Vapour Bath?* Much has been written in its favour, and, were not my time exhausted, I might refer to various interesting particulars respecting it, but at present I cannot even stop to point out the cases in which it is most applicable. The virtues of the Vapour Bath, however, I am constrained to add, have been greatly overrated, and I believe that, in the present day, it has sunk far below its value. At one time, it was recommended in every variety of disease; and it ought not to excite our wonder that there is now some degree of re-action in public opinion. Whenever any commodity is raised high above its value, it is sure, sooner or later, to be sunk to an equal degree *below* it, but, after the lapse of some time, it again rises in public favour, and assumes that station to which it is justly entitled. I have already referred to the common use of the Vapour Bath amongst the Russians. Their establishments are very costly. The temperature to which the Bathers are subjected is gradually increased, till at length they are in an atmosphere of vapour of 180°; then they undergo the process of shampooing, and after this a quantity of cold water is dashed upon the body. I have previously stated that the poorer classes roll themselves in snow. I regard Vapour Baths not only as important remedial agents, but also as valuable prophylactic means.*

Sea Bathing and the use of various Saline Waters

* The Vapour Bath has lately been recommended as a cure for Hydrophobia. In these melancholy cases, however, I should not place the slightest confidence in its employment. I am perfectly satisfied that it would, *at least*, be useless.

should next claim our attention, but their consideration would require a volume rather than a passing notice in a lecture. I shall only remark that the benefit which results from such waters is not to be attributed to their absorption by the skin, but rather to their temperature, and the stimulating effects of their saline ingredients. And then, again, we should recollect that when persons go to watering places in quest of health, they are benefited by something more than the water—by the change of air, change of scene, change of habit, and change of society. But on this subject I cannot enlarge ; there are many points of interest in which it might be considered, but for the present I forbear.

Before I conclude, I must speak one word of explanation, and one in reference to this Establishment. The explanation is simply this—that although I have spoken in very favourable terms of Bathing, both as a preventive and a remedial measure, I do not wish to speak of it too highly. I do not myself regard it, and I do not wish you, as any thing like an universal remedy. Its habitual use will neither keep you free from the inroads of disease, nor invariably recover you from your illnesses. Sickness and sorrow and death are the common heritages of humanity. They are sent in mercy as well as in punishment, and they cannot be altogether avoided. I know too much of the animal economy—of the machinery of our marvellous but exquisitely beautiful structure, to suppose that it can be kept in healthful action for an indefinite time by the use of any means whatever; but I also know enough of morbid action, I know enough of the causes of disease, to state most decidedly and unhesitatingly, that many morbid states might be prevented, and many others might be cured, by a judicious employment of different kinds of Baths. It is obvious to remark that many of our diseases are brought upon ourselves, and I know not a much more common and fruitful source than a neglected condition of the skin.

What I have to say in reference to this Establishment is, briefly, that we have spared neither trouble nor expence in making it as complete as possible.

When we resolved to erect a suite of Baths on an extensive scale, we determined to have them as perfect as we could. Deputations of our body were sent to various provincial towns to examine the Baths which existed there, in order that we might avail ourselves of all the most recent improvements. I believe I may now state that a more complete establishment than our own does not exist out of London, and it is even doubtful whether the Metropolis itself can furnish a superior one. It is true we have no marble pillars—no marble seats—no silver pumps to minister to your luxuries, like they of ancient Rome had. But though we cannot boast Rome's magnificence, we can offer to you equal salubrity. Yes, the waters of the Tiber might be clearer and brighter than our own, but they did not possess more detersive and cleansing properties. Of the water in our Baths I may only further remark that some persons have objected to its colour. It is obtained, however, from the same source as all our water for domestic purposes, and if you were to see the water which you daily drink, in equally large quantities, it would have the same appearance. Although, therefore, we would rather have brighter water if we could get it, we content ourselves with believing that that which will do for drinking *ought* at any rate to do for Bathing.

I feel that I cannot close this address without saying one word in reference to a gentleman to whose exertions we have been considerably indebted, and of whose removal from the world I have only this day heard. Mr. George Wells, the secretary and legal adviser to this undertaking, I believe, took a deep interest in its prosperity. He was regular in his attendance, prompt in his measures, unwearied in his diligence. There is not a member of our numerous Committee by whom he was not highly esteemed; there is not one by whom his early death will not be sincerely lamented. I will not attempt his eulogy, but I could not close the first meeting held within these walls without paying to his memory this small but inadequate tribute of respect.

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