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# A HEALTHY SKIN.

## A LECTURE,

BY W. J. SINCLAIR, ESQ., M.A., M.D.

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### I.—THE STRUCTURE AND FUNCTIONS OF THE SKIN.

THE skin is not a mere *integument* or covering for the protection of the parts that lie underneath it. It is the organ of sensibility and touch, just as the eye is the organ of the sense of sight; it excretes or throws out waste materials from the body, and it absorbs, to some extent, substances which come in contact with it. It also does important work in regulating the warmth of the body.

In order to do all this work the skin is composed of a variety of parts or organs. The structure of these, and their relations to one another, will now be shortly explained with the aid of the diagram, which is taken from a well-known German work on diseases of the skin.

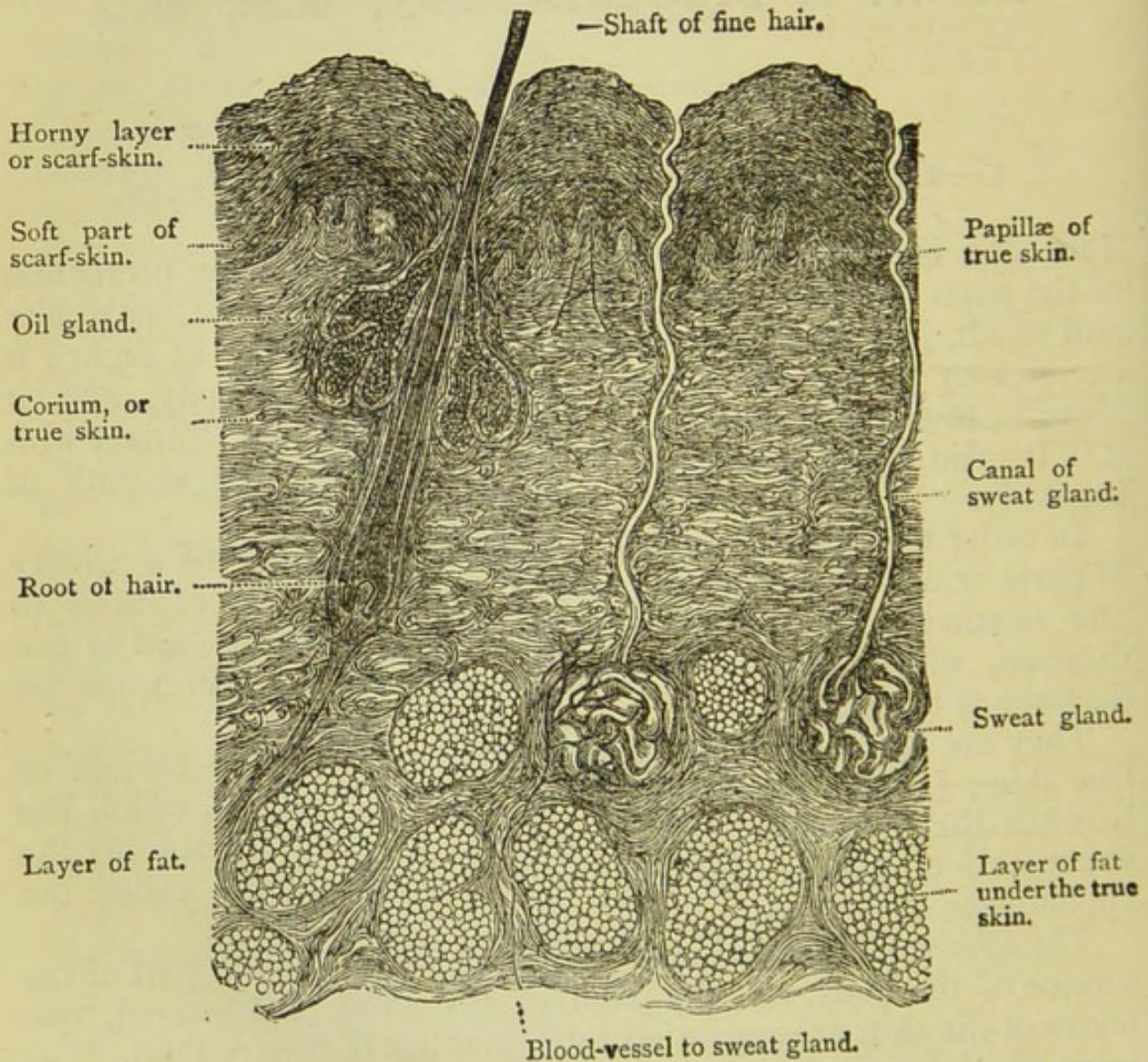
They are (1) the epidermis or horny layer; (2) the corium or true skin; (3) the loose tissue, usually containing fat, which lies beneath the true skin; (4) the nerves; (5) the vessels; (6) the sweat and oil glands; (7) the hair and nails, usually called the appendages of the skin.

*The Epidermis, Scarf-skin, or Horny Layer.*—When a part of the surface of the body, *e.g.*, the palm of the hand, is blistered, two layers of the skin are separated by a quantity of watery fluid. The layer which is raised up is the scarf-skin. It is not at all sensitive, and may be cut, just like the hair and nails, without pain. It is the scarf-skin that the barber cuts when trying the edge of his razor. The epidermis grows on the surface of the true skin, and is moulded over all its inequalities. Nearer the true skin it is softer and more moist, whilst that part of it which is nearer the external surface is harder and drier.

The layer of roundish moist cells nearest to the true skin contains the colouring matter, upon which depends the varying



complexions of individuals and races. The most powerful single cause affecting the amount of colour is light—the intenser the light, the deeper the colour. Many people have freckles in summer who appear to have none in winter. The colouring matter which produces freckles is in the cells of this deep layer, so that these blemishes can be washed away only by exposing the sensitive true skin. The epidermis is constantly growing, just



as the hair and nails are, but it does not require to be pared or cut. The very small particles, as they serve their turn, fall off, or are rubbed away in washing. In some parts these particles collect, and appear in the form of a scaly powder as on the scalp. It is not to be supposed that the mere existence of scales among the hair implies a diseased condition. They are the result of a natural healthy process, and all that is required under ordinary circumstances is to brush them away. When the shedding of scales (dandriff) becomes excessive, a good plan to adopt is to



employ not too hard brushes with a simple application to the scalp, a so-called hair-wash, such as is composed of equal parts of pure olive oil and rectified spirits. It is no advantage, in such a case, to employ those machine-driven circular brushes which produce, for those whose hair is not so thick as in early youth, the sensations of the scalping knife. Indeed, the congestion of the surface produced by the irritation, while it may be conducive to the growth of the hair, is conducive, at an equally accelerated rate, to the growth of dandriff.

This more rapid growth of epidermis occurs wherever there is rubbing, pressure, or any cause of injury at work; and the more the epidermis is subjected to injury the more does it grow, within certain limits. This is well seen if you compare the horny hand of the labourer accustomed to the hammer or the spade with the glove-protected palm of a lady.

*The Corium, or True Skin.*—This is a tough elastic structure, made up chiefly of bundles of fibres, which interlace in all directions. The deeper parts are loose, and, as a rule, contain fat; the parts nearer to the epidermis are extremely dense. The surface of the true skin is studded with myriads of very small pointed projections called *papillæ*, whose average length is about  $\frac{1}{100}$ th of an inch. It is to these papillæ that the sensitiveness of the skin, as an organ of touch, is chiefly due. They are most numerous on the palms of the hands, on the fingers, and on the soles of the feet, where they are arranged in lines and curves, hence the characteristic appearance of the skin in those parts. Each papilla is supplied with blood by minute arteries, and in most of them a little nerve twig terminates. Although the papillæ are the organs of touch, they are not intended to be brought directly in contact with external objects. When this is done, as when the epidermis is removed, the result is merely a painful sensation. The papillæ require to be covered with a certain thickness of non-sensitive horny layer.

In the substance of the true skin, and even deeper, the various glands and the hair follicles are lodged.

*The Sweat Glands.*—Over the entire surface of the body is a vast number of very minute openings or *pores*. They are largest and most numerous on the palms of the hands and the soles of the feet, where they can be seen by the naked eye. On other parts of the body they are smaller and less numerous. These pores are the openings by which the secretion of the sweat glands is thrown out. The sweat glands are situated in the deeper layers of the skin, chiefly amidst the sub-cutaneous fat. They consist mainly



of a coil or tube in the form of a ball, with the duct or drain leading from it to the surface. Each gland, taken by itself, is small and unimportant, but, taken together, they form an organ of the greatest consequence in the animal economy. It has been estimated that there are, on the average, 2,800 pores of these glands to the square inch, and that the total length of the tubes of the glands in the body amounts to nearly twenty-eight miles. The question may be asked, what if this vast system of drainage were stopped? It has been stopped by experiments upon living animals by carefully applying a coating of varnish to the shaved surface, with the result of causing death in a very short time. But in ordinary circumstances the pores never do become stopped altogether. Reckless disregard of cleanliness and exercise may do much to impair the action of the perspiratory system, and thus gradually depress the health and lessen the comfort of existence, but nature's arrangements are too complete for fatal injury to result from passive indifference. The flow of perspiration goes on without ceasing. During rest, as a rule, the watery part evaporates so rapidly that the skin does not become moist; but during active exercise, during certain states of the atmosphere, and owing to some diseases, the secretion forms drops on the surface of the skin. One important result obtained by the exhalation from the skin is the separation of the excess of water from the blood, keeping it in the state exactly compatible with health and comfort. The action of the skin also plays an important part in regulating the bodily warmth under variations of health and of external influences.

When the skin is not acting in a healthy manner its work is thrown upon certain internal organs, and it is the long-continued influence of this loss of balance between the various organs to which depressed health or actual disease originating with the skin are usually due.

*The Oil Glands.*—Besides the sweat glands, the skin contains another kind of gland, for secreting an oil or ointment by which it is kept soft and flexible. These are the sebaceous or oil glands. They are distributed over the surface of the body, but are most numerous in parts largely supplied with hairs. These glands are composed of a collection of pouches filled with a whitish substance like a soft ointment, and communicate with the surface by a duct or drain, which opens most frequently into the cavity or follicle in which a hair grows. The oily secretion is formed in the gland just as the soft scarf-skin is formed on the surface of the true skin. First of all, soft round cells are formed, containing a large



quantity of oil. These are pushed from the lining of the wall of the gland towards the middle of its cavity. Here they burst, the oil is set free, and the minute pouches collapse into scales. By the continuous formation of other cells behind it, the oily substance is driven along the duct and appears on the surface. Sometimes, in certain states of health, the sebaceous substance becomes too dry to flow out. It then remains in the gland, gradually distending it, with or without inflammation. When there is no inflammation, the plug of ointment ultimately shows itself on the surface, and takes on a black head from the smoke and dirt in the air. This is the so-called "grub," which may be squeezed out between the finger nails.\* When the retention of the contents of the follicle is accompanied by inflammation the result is a crop of pimples, "spotted acne," about the nose and forehead, and on other parts where the oil glands are numerous.

When the secretion is completely retained, and prevented from coming to the surface, which rarely happens, the gland and its contents form a kind of tumour, which is seen most frequently on the scalp. These are the "wens" which are sometimes allowed to grow to such an enormous size. They are easily dealt with by the surgeon, and should always be removed.

*The Hair and Nails.*—Both these structures are produced by a modified growth of the scarf-skin. The hair consists of an outer covering of scales, which overlap each other like the slates on a house, a middle layer of fibres like a piece of wood, and a substance called the pith in the centre. The cavity in which the hair grows is a depression in the skin, with a projection at the bottom, and may be compared in this respect to a beer bottle. The projection is the papilla of the true skin, on which the modified scarf-skin is formed, of which the hair consists. Now, if this papilla is destroyed, or if such a change comes over its blood-vessels or nerves as to make growth of hair impossible, it is clear that any attempts to restore the hair will be fruitless. You might just as well apply a salve to the gums, in hope of producing a third set of teeth, as keep rubbing "hair-restorers" over the scalp where the follicles have been destroyed either by injury or by natural decay. When the hair has fallen out, leaving the surface smooth and bare, like a white kid glove, as sometimes happens, no success is likely to attend any endeavours to restore the growth. When, however, white downy hairs remain, there is, as a rule, fair ground for

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\* There often is a living organism in these plugs formed by the retained secretion. They are very minute creatures, only visible under the microscope, and probably have no influence whatever on the diseased condition.



expecting ultimate success. The principle on which all outward applications are made is the stimulation of the surface, so as to bring a larger supply of blood to the part, and thus to cause a more rapid growth of every tissue. Thus the hair brushing which it is hoped will remove dandruff, stimulates the skin and produces a more rapid growth of dandruff. The same stimulation tends to more rapid growth of the hair. All irritating substances—mustard, hartshorn, cantharides, &c.—have the same tendency. The youth, ambitious of possessing the facial aspect of manhood, is recommended by his knowing friends to rub his cheeks and upper lip with a preparation of Spanish fly. The result which he hopes for has been known to follow, to some extent, in the other sex, the application of a mustard blister for a sore throat.

With regard to the nails, there is no time for any remarks of a practical nature. I must, therefore, rest satisfied with stating that they grow from a modified surface of true skin, and that their growth is exactly analogous to that of the hair.

## II.—THE CAUSES OF SKIN DISEASE.

We have seen that the skin is the organ of sensibility and touch, besides being an integument or covering to the parts that lie underneath. It has a wonderfully complicated structure, owing to the arrangement, in varying proportions, of scarf-skin, true skin, fat and cellular tissue, nerves, blood-vessels, sweat and oil glands, hair and nails. This organ has important work to do in performing its part among those processes which taken together we call the life of the body; and, like all hard-working and complicated machines, it is liable to get out of order. The derangements from which it suffers may be the result of unhealthy action of some internal organ or organs, or they may arise in itself from external injury or irritation.

1. Among the most commonly recognised of the internal or constitutional causes of disease of the skin are:—

(a) The transmission from parent to child of a tendency to certain forms of disease. This is well seen in the infant children of parents who have suffered, one or both of them, from a common contagious disease, unless the disease has been completely eradicated. There is a scaly disease of the skin called *lepra* or *psoriasis*, which is often hereditary. I have lately seen a girl of fifteen who has been suffering from this disease for some months. Her mother became subject to it at the same period of life, and suffered from it more or less until she was nearly fifty. Such diseases may sometimes be traced back for generations. When



we consider how exactly the complexion and the texture of the skin in the parent is sometimes copied in the child, we need not be surprised at the transmission of such diseased conditions, nor that here also the sins of the fathers are seen to be visited upon the children.

(b) Some kinds of food have a tendency to produce diseases of the skin. For example, all liquors containing alcohol, when taken in excess, produce a change in the texture of the skin in general, and on that of the nose and contiguous parts in particular. Some kinds of shell-fish and fruit produce nettle-rash. And there can be no doubt that many other substances, taken as food and drink, although they do not act in such a marked manner as those just mentioned, do, in course of time, also produce their deleterious effects upon the skin through internal organs.

(c) Temporary derangement and actual organic disease of internal organs are the chief of the internal causes of diseases of skin. The changes in the skin and the internal troubles may arise from the same cause, or they may react upon one another. The organs whose derangement especially incite or intensify diseases of the skin are the *stomach*, the *liver*, and the *kidneys*. As regards the stomach, if there is an excess of acid secretion, or when there is some other change from the standard of health, then, owing to the absorption of acrid substances, inflammations and congestions are produced or existing ones intensified. This fact is, no doubt, at the root of the prevalence of skin diseases among children in their first years. The anxiety to give sufficient nourishment leads to a habit of constant stuffing, so that quantities of food are supplied out of all proportion to the requirements of the system, or the digestive power of any normal stomach and bowels; consequently, a large amount of only partially-digested aliment is absorbed, leading to internal derangements in the first place, and then to skin affections. The liver and kidneys both bear much the same relation to diseases of the skin. Each has its function to perform in withdrawing from the blood certain waste matters, which, if allowed to remain in the circulation to any extent, produce marked symptoms of disease. It is found, for instance, that in the wet tetters (Eczema) of children the blood contains bile products, though not to such an extent as to give rise to the jaundiced appearance; and the retention in the blood of certain waste products, which it is the function of the kidneys to remove, gives rise to some of the skin diseases, particularly to nettle-rash and circumscribed congestions.



2. A great authority on diseases of the skin has said: "Much more potent in the generation of diseases of the skin than the internal causes, which have their seat in the organism itself, are those agencies which are external to the body." Of these agencies, the following are among the most active:—

(a) "Want of cleanliness and general neglect of the skin amongst the children of the poorer classes is a most fertile source of skin disease. We meet with examples every day of eczema and other eruptions of the scalp, mainly produced by neglect, accumulated dirt, and pent-up secretions."

(b) Irritating applications to the skin. This may include drugs, the so-called "salves," many of which are made with rancid fat in some form or other. Sulphur is frequently the cause of skin diseases when it has been employed as a remedy for them. Castor oil, as everyone knows, is sometimes useful when employed *once* at the beginning of an attack of diarrhoea in a child, to be followed by other remedies, but it does immense harm when used, as we have not unfrequently seen it, time after time for weeks. So with sulphur. It may be sometimes used with great advantage for a time in the treatment of a disease of the skin, but in ignorant hands it is often an irritant. Then there are the irritating substances used in various trades, which produce the so-called bakers' itch and grocers' itch.

(c) Animal and vegetable parasites are among the common causes of skin diseases, *e.g.*, the itch mite which produces the common itch, and the fungus which gives rise to one of the forms of so-called ringworm.

(d) Changes of temperature also produce diseases of the skin, well illustrated by chapped hands and chilblains.

Our skin, then, becomes diseased chiefly from injury or irritation applied directly to it, as also owing to disease in some internal organ, with all of which it is closely connected, although with some more closely than others. Yet, one of the commonest of formulas by which a Bildad the Shuhite seeks to comfort a Job of our acquaintance who has been smitten with "sore boils," is that "It is better out than in." What "it" may be he does not very precisely state, but we may suppose he alludes to some poison in the blood whose evil workings are less likely to lead to serious results in the light of day than if wrought in the dark unknown of the inward parts. There is, as we have seen, a "soul of truth" in this for the most part erroneous maxim, but a very weak attenuated soul indeed—strong enough, however, to animate a vast body of injurious practices. One often sees little children who have



suffered for weeks from some of those frightfully itchy tetter, the result, almost invariably, of some error of diet or external irritant, while there has been a complete neglect of all means of remedy, just because "it is better out than in," or "it's only teething." But one of the absurdest of all the applications of this maxim is to the cases in which an eruption has been produced by the voluntary use of a known irritating substance. It is a well-known fact, that if you apply an irritant to the skin an eruption will follow. Even pure water, if applied pretty constantly to a part, will give rise to a crop of watery and mattery pimples. It is this fact, taken along with erroneous notions concerning the functions of the skin, that appears to have given rise to the most irrational of all the forms of the so-called "hydropathic treatment" of disease. Some people, by the use of water-proof clothing, to prevent evaporation, actually submit to the constant contact of a stratum of water, or of wet clothes, to the skin, until a copious eruption is produced, and then they point with satisfaction to the rather loathsome result, convinced that they must be better, because "if it had not been in, it would not have come out." The fact is they have merely employed a mechanical irritant to a sensitive organ of the body, and produced the injury which was to be expected. They might as well have scratched themselves until the same result was obtained!

I have recently seen a lady who is in the hands of a quack for the treatment of a slight enlargement of the gland in front of the neck called the thyroid. This enlargement, not uncommon among women, can hardly be considered a disease; still it is not graceful, and has to be dealt with. The treatment employed in the case to which I refer is the repeated application of a blistering substance over a small surface in the neck, which will leave a mark for life. The mattery discharge from the irritated surface, which would come from any part so treated, whether there was a tumour or not, is supposed to be the "humour" from the diseased part! In fact, the treatment is "bringing it out."

### III.—PREVENTION OF DISEASES OF THE SKIN.

Having shortly stated the chief causes of diseases of the skin, one might sum up the subject of prevention in the term, avoid the causes. Such a statement has the merit of conciseness, but it is not of much value under present circumstances, with a view to practical effects.

The skin, as we have seen, is an organ of sensation. Any injury to itself is immediately noted, and certain information as to



intensity and locality carried to the brain. It also conveys to the brain impressions of warmth and cold. Certain variations in sensibility and in the feeling of temperature may occur along with perfect health, but extremes imply the existence of mischief somewhere, or cause disease. "The temperature of health is a genial summer over the whole surface, and when that exists the system cannot be otherwise than well." The rule of health to be deduced from this fact is : *By food, by clothing, by exercise, and by bathing, to maintain and preserve an agreeable warmth of the skin.*

I do not intend in this connection to give you a dissertation on food. It would be out of place to go much into detail, and besides, the relation of conditions of the skin to the digestion is not as yet so clear as to permit of the dogmatic statement of many facts beyond what has already been said. The subject of dietetics stands, at the present time, in much the same relation to a healthy digestion that logic does to a sound judgment. To the man who has a good digestion or a clear head, the one or the other science is of comparatively little assistance. On the other hand, to dyspeptic individuals the theoretic knowledge of foods is of little avail towards producing a vigorous digestion, just as the rules of logic do not contract by lines of thought "the straightened forehead of the fool." To the healthful all things are wholesome. The selection of food may be left to the judgment and taste of the ordinary healthy and sane man or woman, and where experience fails to answer the question whether a given article of food is wholesome or not, the best way is not to consult the doctor, but to give it a cautious trial.

Some individuals and even whole families have remarkable peculiarities with regard to the effects of certain foods on the skin, but these cases are rare, and do not affect the general question. Everyone knows how shell-fish, *e.g.*, mussels, cause nettle-rash. Cases are recorded in which even roast beef produced blotches on the skin. I doubt, however, if all the circumstances were sufficiently stated, to prove cause and effect: it might have been the "concomitants" of the roast beef that produced the blotches.

The most common sufferers from skin diseases, as a result of diet, are children of all ages. They have to take what they get, as a rule, and it is very easy to err in the direction either of stuffing or starving. Among those who have a difficulty in providing sufficient food for their children, the scarcity is to be deplored, but the administration of medicines has a very limited usefulness, and advice as to diet just as little. When diseases of the skin occur among children of this class, and they are very



common, the so-called "salves" will be found, as a rule, worthless. What is chiefly wanted is a better diet, and almost invariably, under such circumstances, the assistance of a liberal supply of soap and fresh air. A more insidious cause of skin diseases than the want of a sufficient quantity of food is the starvation resulting from want of variety in the diet of children. The opinion seems to hold ground in many quarters that *simplicity* and *sameness* are synonymous terms. Probably the reason why uniformity of diet acts injuriously among children is that some of the necessary constituents of a healthy diet are present in too small quantity, and the result is a gradual starvation of some tissue or organ. The most common defect in such a diet is want of *fat*, especially in the unvarying diet of bread and milk so commonly given in our large towns to children under two years of age. So much is this the case that a good rule in the domestic treatment of tetter and scabbed heads in such children is—When in doubt, try fat, both outwardly and inwardly. Richer milk, and food containing more of the fat of meat, with cod-liver oil applied to the diseased part, will often work wonders. There are hardly any skin diseases that are likely to be made worse by such treatment. If you fail, get medical advice.

Sameness of diet has probably a good deal to do with the outbreaks of scabbed heads and ringworm in schools and institutions where there is a temptation to push economy to an extreme.

In illustration of another point in this connexion, I cannot do better than quote in full from a small book which I would recommend you all to read—a treatise on "The Skin and Hair," by Dr. Erasmus Wilson: "Another monomania is that of minimising the quantity of food. Being consulted on one occasion for eruptions of the scalp in a family of children, and perceiving that the disease resulted, in a word, from starvation, I put the following questions to the father—a man considered safe in every other particular, and a rational man. My questions soon developed his lunacy. 'What have your children for breakfast?' 'Bread and butter and milk and water.' 'All the year round?' 'Yes, invariably.' (Here a smile of satisfied complacency passed over the face of the respondent). 'What have they for dinner?' 'Puddings—light, you know, not heavy things—no pastry, no fruit.' 'Have they no meat?' 'Yes, oh, yes; mutton, say at least three times a week; no beef—at least very seldom—chiefly mutton.' 'Well, and what do they have for supper?' 'Bread and butter and milk and water.' . . . Then came out the reeking wonder of this gentleman's mind—that with so bland, so careful, so digestible a diet, his children could suffer from any ailment,



and more than all from a skin complaint. With an improved diet the children got well instantly."

The question of *clothing* in relation to the skin is a most important one; but as those of you who have attended so far this course of lectures have had the whole subject of clothing in relation to health ably and fully treated, my task in this conversation is lightened.

Ordinary prudence requires every man, woman, and child to keep up the genial summer over the surface of the body by means of suitable clothing—a difficult task sometimes, in face of climate and prejudice. We dress by the calendar to an insane extent, instead of going by the actual state of the weather. We are almost always disappointed with our spring season. Isolated fine days induce us to doff our warm clothing, in spite of repeated experiences of the variable nature of our climate and its consequences. These consequences, however, affect, not the skin itself so much, but the various organs of the body through the skin, appearing in one as congestion of the lungs, in another as a quinsy, in another as a cold in the head. But of all sufferers from want of suitable clothing, both as regards internal organs and the skin itself, children are again the chief. Old people also suffer to a large extent, but their sufferings are not so preventible. Strong men often grumble about "unseasonable" weather at Christmas, if there is not snow and hard frost, and say it is unhealthy, but they little know what a terrible struggle for existence it is with those at the extremes of life when the temperature is low. The difficulty is to keep the animal heat at a point high enough, not merely for the genial summer over the surface of the body, but actually sufficient for carrying on the processes of life. It is well enough known that infants require very great care during the first days after birth to keep them from suffering from the colder surroundings in which they have to exist, but it is not so well remembered that this difficulty of keeping up the animal heat continues, in a diminishing extent, for years. As they grow older the danger from cold becomes less, but still it is great compared with that of the healthy adult man or woman. In spite of all this, who has not remarked it as one of the commonest of sights to see little children running about out of doors with bare legs in the winter season, or to see them in their homes with bare legs, arms, and necks, as if the ideal which had been aimed at in dressing them was the statue of a heathen god or an angel in an old religious painting? Now from this large bare surface there is an enormous loss of heat, even in a room warmed, as is usual in our



ordinary houses, and a still larger loss, of course, in the open air. No wonder, then, that the children's faces often appear pinched and wrinkled, and their arms and legs livid from defective circulation of the blood, and rough, owing to the frequent recurrence of the condition of "goose-skin." But mere discomfort is not the only consequence of loss of heat—there is a constant waste of force, which has all to come from the food, which would otherwise go to nourish the tissues of the body. We clothe the boilers and steam pipes of our steam engines to prevent waste of heat, which means waste of coal, but that which should be going to make flesh and blood, thews and sinews, heart and brain, in our children, we let be scattered to the winds for want of protective clothing where no want need be felt. All organic nature around us should teach us better things. Our very garden vegetables would not grow to a respectable size and succulence if submitted to corresponding treatment. Where a genial summer reigns for a considerable part of the year, there you find organic nature—animal and plant—at its best; and as you advance towards the arctic zone you find them slower of growth, and more stunted when complete. The same holds true to a large extent with man himself; and yet, during the period of most rapid growth, instead of the genial summer over the surface which would give comfort and assist development, we produce the almost arctic cold against which our puny ancestors—the naked aborigines—had to struggle.

And why, let us ask, can such an absurd and injurious custom still hold its ground as that of exposing little children to unnecessary cold? It is "to make them hardy," some say. The perilous period of early childhood is not the time for experimenting upon the constitution, even with such a laudable object. But there is no use of arguing the question: the really all-sufficient reason is an æsthetic one. The contemplation of the bare legs and arms pleases the maternal eye. They look so "nice." If you will but look at the subject as occasion offers, you will get many a glimpse into the fathomless abyss of human folly. An old idolatrous custom was to make the children pass through the fire to Moloch. Our modern version is to make the children endure the frosts and biting east winds in worship of the Moloch of a fashion as irrational and as cruel as were ever the rites of any ancient superstition or idolatry.

A general rule with regard to clothing is that it must, within certain limits, admit of the change of air in contact with the skin and of the free transpiration of the skin. There is a class of ailments in which the porosity usual in dress is better dispensed



with. Sometimes the exhalation from the skin is deficient, and the epidermis begins to crack, and feels rough and hard. This condition may affect the whole surface or only a part of it. In such a case, the use of a Macintosh dress to confine the fluid that comes imperceptibly from the surface of the body is a mode of treatment suited for domestic practice too seldom resorted to.

Let us now shortly consider the relation of *bathing* to the health of the skin and the general health. When the surface of the body is wetted with cold water the skin contracts, the size of its blood-vessels becomes diminished, and part of the blood which would have circulated through the skin is suddenly sent to the deeper organs. The nervous system is also stimulated, the breathing becomes quicker, and there is a more energetic action of the heart and blood-vessels, consequently there is a rush of blood back to the surface, producing the flushing and sense of warmth familiar to all. This condition, the "reaction," is "the first object and purpose of every form of bathing. By the reaction the internal organs are relieved, the breathing is lightened, the heart is made to beat calm and free, the mind feels clear and strong, the tone of the muscular system is increased, the appetite is sharpened, and the whole organism feels invigorated." If this reaction does not come on quickly the mode of bathing adopted can do no good, and may even be unsafe. The man or woman whose fingers or toes become blanched and benumbed for a time after bathing is not in a fit state of health for the particular sort of bath that has produced such a result. Some other less trying mode should be employed.

While the hot bath is also a stimulant, the warm bath has a soothing effect upon the system, producing a tendency to sleep.

But the great result to be obtained from the use of the bath is cleanliness. From the mere physiological action of the skin, apart from one's occupation altogether, there is a constantly recurring necessity for the use of the bath. The scarf-skin is continually growing and being cast off in the form of scales, which stick to the surface of the body, glued thereto by the unctuous secretion. The thin crust thus formed attracts dust and particles of dirt from the dress and from the air, and tends to produce certain injurious effects:—

1. It closes up the pores, thus impeding the flow of the perspiration and other fluids, and lessens the amount of work done by the skin.

2. The skin may become irritated, and owing to the adhesion of the salty constituents of the perspiration it becomes damp and cold.



3. There is good ground for believing that the germs of infectious disease find a resting-place on this unclean surface, and ultimately get drawn into the body.

When the pores are obstructed part of the work which the skin should do is thrown upon the lungs, liver, and kidneys, and the foundations of disease in these organs are gradually laid. And even though no disease arises sufficient to materially affect the duration of life, there is a lowering of the tone of the system generally, and that condition in which, without any definite complaint, a man feels that he is not at his best either physically or mentally.

The regular use of the bath as a domestic institution is now well established, and its uses fully recognised. But so recent is the growth of this habit that we have not quite got over our prejudices. We are not afraid to wet our backs, like the Russian spoken of recently by a correspondent at the seat of war, that is, if we feel well enough, but we are very shy of the use of the bath in the treatment of disease. I find this to be peculiarly true during the illnesses of children. Even in the commonest ailments, which could not be affected much, one way or the other, by the ordinary processes for insuring cleanliness, there is such a dread of water that when the illness lasts for some considerable time, the little invalids become simply offensive to themselves and others. Unfortunately among the class most influenced by this superstition, there is often a remarkable obtuseness to offensiveness of the nature suggested. The shrinking from the use of the bath under exceptional circumstances is not justified by any unfortunate experiences resulting from the careful employment of it, and thus we lose, without sufficient ground, the powerful influence of the bath, at all degrees of temperature, in modifying diseased processes, and especially that of the cool bath in reducing fever heat. We are in this respect far behind our continental neighbours. Affections of the skin are now more and more likely to be treated by bathing. With the spread of knowledge, of an easily acquired nature, as to the effects of certain medicated baths, a large amount of discomfort and even suffering may be spared to many who at present endure their ills for want of the necessary means to enable them to be cured.

The necessary knowledge will, no doubt, come slowly, and it will be well if our knowledge of treatment does not far outstrip our general knowledge of physiological processes. Otherwise harm will come of it. Even now, it is a wonder we do not hear of more accidents from baths, considering the way that private bathing is done amongst us.



When a man gets up out of a warm bed, and tumbles suddenly, and without any preparation, into almost ice-cold water, I confess I consider it a feat to wonder at but not to imitate. Such bathing ought to be a mere result of training, and rank in the category of gymnastics. It is one of the fantastic tricks that men play with their constitutions, like walking a thousand miles in as many hours, running races that would be trying for a greyhound, or allowing people to break paving-stones on their chests. The only quite safe bath for an ordinary man or woman, without training, for all the purposes of cleanliness, and for bringing on the reaction, is cold sponging, either with or without previous hot sponging. The process can be varied in many ways, according to the feelings and state of health of the bather, and no one need cease to have baths altogether because too delicate for the common practice, or because there is not a bathroom in the house. All that is required is an ordinary portable bath or a large "mug." A small quantity of warm water may be put into the bath, just enough to keep the feet warm. Then the cold or cool water supplied from a basin or the tap is to be applied by a sponge over the head and neck, limbs and trunk, as quickly as possible. The exertion required for this is an advantage. A final application of the sponge to the nape of the neck, in order to send a stream down the hollow of the spine, may complete the process. Everything, including the process of drying, should be done without loss of time. This is all that is necessary for health. A man who is ambitious and very robust may reach the profoundest depth of a plunge bath without a fit of apoplexy resulting in his youth, but there is no evidence to show that he is better off than his less ambitious contemporary who acts more cautiously.

While speaking of excesses and exaggerations I may as well admit my doubts as to the wisdom of the usual urgent advocacy of the bath in relation to health. We all come in contact with people that do not take a bath from one year's end to another, and who appear just as well as the bulk of the most regular bathers among us, and the statement of our dogmas concerning health and cleanliness are thereby to some extent discredited, and are not received with the respect we wish for them. We are, perhaps, apt to give too little credit to nature's modes of cleansing the skin and keeping the pores open, and inclined to exaggerate the injury resulting from the want of the bath. I believe that people who live in a pure atmosphere, who change their underclothing and bedclothes frequently, and who live active and otherwise healthful lives, indulging in no excesses of food and drink, require very little aid from the bath, and will be found, after years passed with-



but washing more than their faces, hands, and feet, to have as open pores and almost as little of the crust of dead scarf-skin about them as the contemporary townsfolk who bathe regularly. The torrent of fluid from the skin glands during the sweat of labour or of exercise keeps the pores open and the surface soft, while the frequently changed clothing does the part of the flesh scraper. Of this, for the most part natural, cleansing we must not attempt to make too much. There is in the perspiration an odorous substance, which in people of cleanly habits is not disagreeable, but which is very apt, especially in those of sedentary habits, to become offensive; and people who live together, and value one another's respect and affection, cannot afford to run the risk of becoming objects of mutual disgust.

Whatever saving clauses we may put in to free us from the blame of exaggeration and of libelling nature, there can be no doubt that taking the population as a whole, since the comparatively recent introduction of the general use of the bath, the severer forms of skin disease have become rare, and all forms less common than they were wont to be among ourselves, and than they still are in some other countries, where the people pay less attention to cleanliness than we now do.

For us who live in a large city, where the air is loaded with all manner of impurities, the bath has become a necessity of healthful existence. Our facilities, however, are not quite up to our felt wants, but we are developing. Men and boys who are willing to rough it, have within their reach the means of bathing, but we have little accommodation for women and girls, and I fear that even what exists is but little used. When interested in this subject a few years ago, I made inquiries of a considerable number of working women, as opportunity offered, at one of our medical institutions, as to their means of bathing, and to what extent they took advantage of them. Some confessed to have been years without a bath, but as a rule they were very reticent and did not seem to like the subject—the admission of want of the means of cleanliness, or of neglect of those within their reach, was naturally unpleasant. No doubt a better state of things will come by-and-by. The houses of our working classes are undergoing a process of rapid development. Defective as they are in this city now, if the tenants aroused themselves from indifference and made the most of their material means and legal rights, they are, or they might soon become, real palaces compared with what they were a generation or two back, or with the presently existing pig-sty habitations of the Scottish Hebrides and of Connemara. It is but



yesterday since owners of cottage property began to endeavour to attract tenants by putting in baths and other conveniences not absolutely required by law. The development will go on, for there can be no retrogression in such matters; and the time is not far distant, I well believe, when every human habitation, where there is a properly constituted local government, will contain a bath and all necessary means for decency and comfort, and for preserving the health of the inmates.

Meantime, public baths must, to a large extent, form the connecting link between the present and the future. Impressed with our wants in this respect, a councillor of Salford, zealous of all good works with regard to the health of his constituents, has suggested that a part of one of the canals might be staked off as a public bath for boys. If seriously made it is a modest proposal, and not oppressive from a ratepayer's point of view. Safe bathing ground certainly is wanted, for a certain average number of the boys of Manchester and Salford are drowned every summer while bathing in the canals, claypits, and other unsuitable places. One advantage of carrying out the suggestion I have mentioned would be, that if these lives were not saved the friends of the victims would at least know where to look for the bodies. But I trust other conveniences than this are in store for us, and that it will soon be the privilege of every man, woman, and child to bathe with decency and safety, not in the reeking and malodorous mud of the canals, but in the cool and limpid waters of Thirlmere.

#### IV.—THE CURE OF SKIN DISEASES.

"In all cases of skin diseases the earlier the patient comes under treatment the more likely is he to get rid of the cutaneous eruption—in other words, the most important point as regards speedy cure is early treatment." In the vast majority of cases of skin disease it is necessary to intrust the treatment to medical hands. The disease assumes such an infinite variety of aspects with the individual constitution and circumstances of the patient as to render intelligible directions for the domestic treatment of the moderate or severe forms quite useless or even mischievous. Few of the diseases are likely to end fatally, but it is very easy, by injudicious meddling, to cause pain or discomfort, and perhaps permanent disfigurement. All the more necessary is it, therefore, to employ every available means of prevention within our reach.

There are, however, several of the commoner skin diseases concerning which a few facts and plain directions for treatment may be of use to some who, but for the knowledge they themselves



may possess, would have to endure the inconvenience arising from their ailments.

In infancy and early childhood the skin is peculiarly sensitive to injuries from without, and more than in after life liable to be affected by internal derangements. The ordinary discharges, if not carefully washed away, may produce troublesome inflammations of the skin, and great irritation may be caused by the rubbing of flannel clothing, by fleas, &c.

There is a form of nettle-rash seen in little children, almost always among the working classes of large towns. It shows itself as slightly raised red blotches on some part or all over the surface. It is worst in the night, causing great sleeplessness and, consequently, loss of rest to everybody in the house. It changes so rapidly that the blotches and itching may have almost entirely disappeared by morning—to recur again and again with the same result. This ailment, like many another occurring at the same time of life, is referred to “teething,” and that is thought sufficient reason for neglecting it as far as the complaints of the sufferer will permit.

The best domestic treatment is very strict attention to cleanliness and diet. The child should get a tepid bath night and morning. Care should be taken that no part of the dress irritates the skin—flannel not being allowed to touch it, and the patient should enjoy the benefit of fresh air and sunshine as far as circumstances will permit. Considering the circumstances of the class among whom the disease is commonest, it may not be superfluous to say that a strict lookout should be kept for fleas and bed bugs. If the itching continues, instead of a simple tepid or warm bath at night, an alkaline bath should be given. Such a bath will be found useful in all itchy skin diseases, and for a child may be managed in this way: In about eight to ten gallons of water as warm as the hand—everybody knows the quantity contained in a nine-gallon cask—dissolve from one to two ounces of bicarbonate of soda. Bathe the child for a few minutes, and do not be too exact in drying. The patient should be put to bed immediately. This alkaline bath may be modified to suit grown-up people, and will be found very useful. Where there is not convenience for a bath in the ordinary sense, alkaline sponging, done somewhat after the fashion described in a former part, will serve as a fair substitute. Nettle-rash occurring in adults, although the itching may be relieved by external application, is almost certain to require medical treatment to set right some internal organ.

The medical term *eczema* includes the diseases designated by a chaos of popular names—tetter, scurvy, scabbed head, &c. The



word *scurvy*, which in medical language refers to a totally different disease, appears to be employed in this part of the country in a vague way for any sort of eruption on the skin. With regard to the whole class of watery and mattery eruptions, which ultimately become scaly or scabbed, it cannot be too strongly urged that medical advice and treatment should be sought for them at once. What good can it do to say it is merely "teething," and will come all right? The suffering in the meantime, and the possible disfigurement of the future are not diminished because you call the disease by a name which is likely enough to be an absurd one. One often finds that for scabbed head, *e.g.*, however itchy and troublesome it may be to the patient, no advice whatever is sought until the glands of the neck begin to swell by infection from the mattering surface, and "salves" are sometimes actually rubbed into those glands, as if their condition formed a distinct disease. They might as well be rubbed into the soles of the feet. Even when advice is obtained there is often great reluctance to carry it out. It is painful to think how many mothers absolutely refuse to cut their children's locks, or try all sorts of shifts to avoid the dread alternative, however much diseased the scalp may be, or however filthy the hair. Another prejudice, more difficult to combat than even maternal notions of the æsthetic, is the belief that there is some danger in healing a tolerably extensive skin disease, especially one affecting the scalp. There is a fear of convulsions, which has been proved groundless again and again. One great German authority in the treatment of skin diseases observed many thousands of such cases closely, and never found any connection between them and nervous disease. If it is fits you are afraid of, does it not stand to reason that the constant itching irritation of the diseased part, and the consequent sleeplessness and loss of general health, are fully as likely to lead to nervous troubles as the healing of the disease by means directed both to the constitutional state and to the affected skin?

*Acne, Pimples on the Face.*—Inflammation of the oil tubes and glands, extending more or less to the neighbouring skin, gives rise to a well-known eruption of the forehead, face, chest, and back called *acne*. This disease has been already referred to in the description of the oil glands. When the pimples have the black head of a "grub" at the point, they constitute *spotted acne*. There is a variety which affects the nose and its immediate vicinity, and is usually associated with excessive indulgence in alcoholic stimulants, although it may, and often does, arise from other causes in the most abstemious. It always annoys the afflicted, and may be



the cause of serious loss in business or otherwise owing to the prejudice which it excites. This is always an obstinate complaint, but may be improved by strict attention to the various functions of the body and by fresh air and exercise. To get rid of the unsightly appearance something more is necessary. The "grubs" should be squeezed out. This can be done, as a rule, by the finger nails, before the glass. The inflamed points require stimulating. For this purpose a preparation of equal parts of carbolic acid, milk of sulphur, spirit, and glycerine, which may be got from any druggist, should be applied carefully at bedtime.

*Warts.*—These growths, which arise from an excessive development of the *papillæ* of the true skin, need not be described. They cause annoyance to the adolescent mind—not from any sensation they produce, but because of their unpleasant appearance. Various remedies are suggested. It used to be supposed that the application of a piece of stolen beef to the growths would dissipate them. There are evident objections to this treatment. A better plan is to apply a little nitric acid—*aqua fortis*. This must be done very carefully. Not more than one dram (teaspoonful) should be kept in the house. Take a small stick—a lucifer match, *e.g.*—dip it into the acid, and so apply a tiny drop to the top of the wart. It soon becomes yellow, and in a few days the top can be picked off. Repeated applications in the same way are necessary.

*Parasitic Skin Diseases.*—These are caused by either animal or vegetable parasites. The most common one in this country, produced by an animal parasite, is itch. The disease takes its name from the sensation produced by the burrowing of a creature something like a cheese mite. The *natural* appearance of the disease is soon changed by scratching. Probably not a tenth part of the cases called by this name are really itch. People of cleanly habits are rarely troubled with this disease; and if by any chance they become affected, they soon get rid of it. The mite is easily poisoned by applications of sulphur or of sulphur and mercury combined. One or two thorough applications of the "fell sulphurous rozet," with plenty of soap and water, should always be sufficient to effect a cure.

The vegetable parasitic diseases are caused by the development of a fungus, chiefly on the parts covered with hair. By a fungus is not here meant a toadstool, but a very minute organism which, owing chiefly to certain similarities in the mode of reproduction, is ranked in the vegetable kingdom with the fungus. The fungus grows round and into each hair, just as ivy does about the stem of a tree.



The commonest of these diseases is the ordinary *ringworm* of the scalp. Whenever the disease is observed, efficient measures should be taken to cure it, instead of wasting time with some of the feeble popular remedies, such as ink, thus permitting the affection to spread and become established. The hair should be cut for half an inch round each patch of ringworm. Get a small camel-hair brush, and a solution of the following composition : Iodine, 30 grains; colourless oil of tar, two drams. Apply the solution carefully with the brush *to the diseased part only*. Repeat the application in a week. It is a most obstinate disease, and requires the exercise of great patience. Children suffering from ringworm should not be much confined in the house, and it is a good rule to give them cod-liver oil, or steel wine, or both.

These are only a very few of common skin diseases susceptible of home treatment. The space at my disposal does not admit of more details. Some may think there have been too many given already. To these it may seem strange to hear directions, which are usually only given by medical men, with reference to special cases, stated as a general contribution to popular knowledge. The reason for giving these details seems to me sufficient. It is this : The occurrence of skin diseases is a fact to be dealt with. There is a vast amount of domestic medicine expended upon them, for the most part in a rather irrational way. The old, often useless, remedies will continue to be employed unless some of the results of more recent science and practice are brought home to the popular mind, so that the new may be substituted for the old in the poor man's house as well as in the physician's consulting room.