Diseases of hair : a popular treatise upon the affections of the hair system, with advice upon the preservation and management of hair / by Benjamin Godfrey.

DISEASES OF HAIR:

A POPULAR TREATISE

UPON THE

Affections of the Hair System,

WITH

ADVICE UPON THE PRESERVATION AND MANAGEMENT OF HAIR.

BY

BENJAMIN GODFREY, M.D., F.R.A.S.,

FELLOW OF THE ROYAL MEDICAL AND CHIRURGICAL, PATHOLOGICAL, AND MEDICAL SOCIETIES.

LONDON:
J. & A. CHURCHILL, NEW BURLINGTON STREET.

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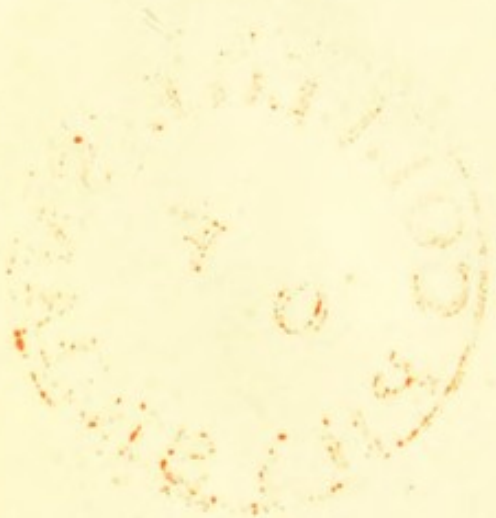
DISEASES OF HAIR



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Dedicated

TO THE

HEADS OF GREAT BRITAIN.

PREFACE.

It needs no excuse or apology for bringing before the world a subject much neglected by the faculty—I mean *Diseases of the Hair*. A letter, some years ago, appeared in the *Lancet*, calling upon some one to make baldness an especial study. I transcribe a portion of it:

"A few of the ills which flesh is heir to seem by common consent to be neglected by the physiologist, the physician, and the surgeon. Consequently, these branches of the healing art yield a rich harvest to the ignorant and impudent quack. I refer to diseases of the teeth, of the ear, of the feet, and of the head, affecting the hair. The former should perhaps be excluded from the category, for intelligent and educated men now make them their study, and it is to be hoped that medical men will not consider the others as unworthy their attention and skill. It is to the last kind of these diseases I wish to draw the attention of the readers of the *Lancet*. The prevalence of total or partial baldness at the

present day is a matter of common observation. From observations which I have made, I may safely say that in any large assembly of persons, such as meet in a theatre, a church, or Exeter Hall, one-tenth of the whole will be either totally bald, or only able to show a coronet of hair; and the greater part of them young or middle-aged men. If we take smaller assemblies, such as meet at the various scientific and literary societies, the fact is still the same. In one of the largest medical schools in London, there are twelve, either professors or belonging to the hospital staff; only four of them can be said to have their heads covered with hair. The oldest of them, I should think, is not above fifty. The students, too, of the same school seem to be following the example of their teachers, for in one of the classes I noticed from fifteen to twenty whose crowns were only saved from visible baldness by the adroit manner in which the hair was brushed."

Another periodical has the following: "Hair always has been accounted an ornament. It is surprising, however, considering how much time, trouble, and money are lavished upon it, that the public are so utterly at sea in the nineteenth century, not only as to its structure and its physiology, but the mode in which the commonest agencies act upon it for good or for evil. The general idea seems to be that the hair is a tube which can imbibe nutritious material presented to

it from within the body through the blood, or without, through the medium of pomades or things which do harm to the hair of those who use them. It would matter very little if the prevailing fashions of dyeing, bleaching, and curling, and the widespread employment of spirituous and stimulating lotions and pomades were in all cases devoid of harm, but the reverse is the case; for these things are often most injudiciously and unfitly used and done, both as regards time and the nature of the hair disorder. The existence of so much ignorance in regard to the management of the hair is readily accounted for by the fact that it has as yet received no care or attention at the hands of those who are possessed of scientific knowledge. The physician deems it a topic scarcely fit to employ his time and thought, and hence it is left to be discussed by men who, in nine cases out of ten, know nothing of the true structure of hair, and certainly less of its life under different conditions, both of health and disease, and who consequently cannot be acquainted with the way in which its vigour may be promoted or its decay stopped. Now and again a man may make what is generally termed a "lucky hit," but lucky hitters are not always right; and often, by their free and easy handling of remedies of which they know little, do an infinity of harm." *

* Cassell's "Household Guide."

The demand for more light upon this much-neglected subject led me to give some years of study to this department, and the following pages I offer to the public as a small addition to the general stock of hair literature.

I am indebted to the whole book-world for my information. Literature, like the air we breathe, is public property. So I have taken it, and used it, and made it produce things new and old, for the edification of my readers. I have culled flowers and fruit from the Bible, the Zend Avesta, and the Talmud. I have gathered sheaves from the Greeks, the Romans, and the Egyptians, and have gleaned stray ears of corn from every harvest-field where my feet have trod. I am indebted to all science for my facts, to all history for my information. Therefore I cannot mention the names of books that have been consulted, or papers that have been perused.

Carlton House, Enfield, N.,
January, 1872.

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DISEASES OF HAIR.

CHAPTER I.

INTRODUCTION.

Hair! 'tis the robe which curious Nature weaves
To hang upon the head, and does adorn
Our bodies: in the first hour we are born,
God does bestow that garment: when we die,
That, like a soft and silken canopy,
Is still spread over us; in spite of death
Our hair grows in the grave, and that alone
Looks fresh, when all our other beauty's gone.

Decker.

If Nature be left alone, how exquisitely does she do her work! Whether we gaze upon the pensile twigs of the weeping willow, or the long, flowing, curled and wavy hair of one of her children, how perfect and how free! Beautiful in her simplicity, and magnificent in her plenitude. The soft down of the peach, reflected upon the head of the infant, the ripple of the stream mirrored upon the wavy lock of childhood, or the autumnal hue of the dying leaf, living upon the grey

hair of the aged man, all speak in accents powerful to the reflective mind. How soon was the puerile innocence of Eden spoilt, when the tree of knowledge was tasted! The glow of health vanished like a sunbeam, the primeval joy passed away like a shadow, and weeds and sorrow were left behind. "And they saw that they were naked"—purity saw no such thing as nudity, but now, the first garment of fig-leaves is needed, soon to be followed by the frisette and wig. The world began to grow, and a nation of shavers sprang into existence. First came the Egyptian, then the Assyrian with his curling iron and colossal bulls, to be superseded by the fashions of the Greek and the Roman. And from the fall of these valiant nations down to the present day, people have striven to adorn Nature's hirsute beauty, and to twist and torture the inoffensive hair into thousands of different forms. Ashamed of the wild luxuriance of Eden, or despising the streaming tresses of the maid of Athens, whose lovely locks were woed by the Ægean winds, they have trussed and compressed the hairy covering into every conceivable shape. The Spartan lads considered hair the cheapest ornament they possessed. Leonidas was seen by the Persian spy, carefully oiling and combing his locks before he entered upon the fight of Thermopylæ. The early Greeks bound their hair into a topknot, and crowned it with a golden cicada. The Romans cut it short, and, like St. Paul, thought it "a shame for a man to have long hair." But fashions will change, and men will differ. Our forefathers once had long hair streaming down their backs, and some time after they bound it up into a rope, like a pigtail.

So with the ladies, the *beau ideal* of to-day, is the fantastic of to-morrow. The curl-papers are all burnt, and chignons take their place. Coiffures of all kinds have had their day, and like dead flowers, are cast aside and forgotten. The hair that the *beau monde* of London covets, is hated by the Breton girls. The fair children of Brittany think that Nature made a mistake in sending them such a useless thing as hair; so like sheep they go once a year to be shorn by the philo-comal merchants, and consider the only use of tresses is to supply their pockets with coin, or their bodies with coloured kerchiefs. But Berenice, the wife of Ptolemy the Third, prized her comate covering as highly as the ladies of Mayfair do their *chevelure*, still she was willing to part with all rather than lose her husband; so to propitiate the deities, she cut off her beauteous locks and placed them in the Temple of Venus. Her male self was going upon a dangerous expedition into Syria, and love was willing to make the sacrifice, that the waves might bring him safely home. But there were thieves in Egypt, and the treasured tresses, consecrated and dedicated to the goddess, were stolen. The queen was inconsolable—tears fell thick and fast, like a storm upon an April day. The husband was abroad, the aparchia was gone. No more crinal glory to fall back upon; so Conon, the astronomer, turned comforter and liar, and publicly reported that Jupiter had carried the locks away and hung them up in the heavens as a constellation. There the tresses, like stars, are glittering now under the name of "Coma Berenice." The sea brought back her husband, and time her hair. The ancients,

considered the hair to be a kind of excrement, fed with the *débris* of the body, and no part of its living structure. In Shakspeare's time this view was held :

"For I must tell thee, it will please his grace, by the world, sometimes to lean upon my shoulder, and with his royal finger, thus dally with my excrement, with my moustache."

Love's Labour Lost. Act V.

Many looked upon the hairy covering as a bit of dame Nature's housekeeping economy, that whenever the blood became highly charged with some form of hydrocarbon, as in consumption, then hair was produced to carry off the excess of material. Others thought that it was the excreta from the blood chased by the heat of the body to the surface, and then condensed into substance by contact with the external air.

Hair is more or less a modification of the skin. It is as much a part of the body, as the nails in the human, feathers in the bird, and horns in the lower animals. Yet it is not what is termed living. If you cut its filaments they will not bleed. Neither can they multiply themselves. Hair once emerged from the scalp, can never live again. New material will every hour be added to the root, which will multiply at the base, and go on pushing the formed material before it. The extremity of the filament is its oldest part, and that nearest to the root its youngest part.

Dr. Beale tells us that in the human body are two forms of material. One, living, active, and formative, the other, lifeless, passive, and formed. Of such is the hair. It is as lifeless as the shell of an oyster, yet as long as the moving mollusc lives, the shell grows; so

long as the human breathes, the hair continues to elongate. It was once living germinal matter in a state of high activity, but now, like a dry and withered leaf which hangs upon the trees in autumn, it is lifeless and passive. But unlike the sear leaflet, it receives nutriment at its base, and still goes on elongating, until nature pushes it off for a new being to take its place. This often occurs in the lower animals, and is called "shedding of coat" in horses, and moulting in birds. Now, this formed material permits of fluids permeating its tissue, whether nutrient pabulum or pigment. This will explain the sudden transformations we shall have to notice by-and-by.

We constantly read of the hair tubes and cylinders, but this is not correct. In spite of a sage professor of the block declaring that "the 'uman 'air of the 'ed was a 'ollow tube," we must differ from this philocomate philosopher. It is not a hollow tube, neither is it cylindrical. It is not a circular body of uniform diameter whose surface at each end is a circle parallel to that at the other end. It resembles a needle, the eye the root, the point the termination of the hair. Upon the head it is not hollow, except in old age. Then a medulla appears. Hair may be straight and resemble a thread, or curly, flexuous and flattened. It may be frizzly like that of the negro, or spirally twisted like the love-locks of old, or the curly pate of boyhood. There are fine downy filaments that cover the body, and sometimes grow too luxuriantly upon young ladies' chins. Then there are the short stiff hairs that line the eyebrows, and get sometimes touched with stibium or kohl. These hairs, like vegetation, follow

stated laws. They grow, not like a field of wheat or grass, simply pointing upwards, but take an oblique direction. Like the stars, they move around a centre, and in some parts of the body diverge from a fixed point, not unlike the November meteors.

The whole of the human body is studded with hair, except the palm of the hands, the sole of the feet, and the lips. Upon the greater part of the skin, the filaments are short and fine, like the down upon the eider duck, but upon the head they lengthen and give a fine opportunity for the barber to exercise his skill. In the Exhibition of 1862, a head of hair was exhibited which measured two yards in length. A young lady in Massachusetts refused a thousand dollars for her crinal covering, which was only one inch short of six feet. This would sweep the floor, and like a comet leave a tail behind whenever the young lady "took her walks abroad."

Such must have been the condition of St. Agnes, in A.D. 304, who drew a curtain of hair around her to hide her nakedness from her persecutors. One may have too much of a good thing, so was it with the burgomaster, Hans Steiningen, for on one occasion he forgot to fold up his magnificent beard, and trod upon it as he ascended the staircase leading to the council chamber of Brunn, and was thereby thrown down and killed. In the Prince's court at Eidam, was once a man who possessed a beard nine feet long, and who, like an elephant, had to pack up his trunk, that is his hairy ornament, whenever he travelled. He must have envied the oyster!

Hair is thick, as well as long. It averages the four

hundredth of an inch, that is four hundred hairs laid side by side would cover one inch of ground. Age and sex have an influence upon its substance. In the male it is the finest, in the female the coarsest, but in the child it is finer than in the man. Colour also influences its size. Black is the thickest, flaxen the finest. Different regions of the body have diverse characters. The hairs of the beard, whiskers and eyebrows are much coarser than the filaments of the head, and possess a decided medulla or pith.

The growth of hair is a slow process. How long has many a young man to wait before the idol of his heart, the moustache, appears! Withof found the beard grew on an average, six inches and a-half a-year. Berthold observed, in a female, that seven inches grew from the head in the same time. But growth of hair depends upon the cutting, for as long as hair is cut, it grows, but if left alone it will advance to its typical length, and then fall out of the scalp, leaving its place to a new hirsute visitor. If a man shave his beard daily, it will grow faster than if left untouched.

The number of hairs upon the human head has been carefully counted, and it has been found that this depends also upon the hue. The blonde belle has about one hundred and forty thousand filaments to comb and brush, while the red-haired beauty is satisfied with eighty-eight thousand. The brown-haired damsel may have one hundred and nine thousand hairs upon her pate, while her less favoured sister in black, can only boast of one hundred and two thousand. No wonder, then, that the poor infatuated suttee, as she ascends the funeral pile of her late

husband, laments the fate that gave her a sable hirsute covering, for superstition whispers to her that she shall by this sacrificial act, enjoy as many years in heaven with her lost husband as there are hairs upon her head. Can we marvel that she envies the light-haired beauty who will be twice as long in paradise as herself? The same diversity in number in fibres of wool, exists in the sheep. The coarse German breed possesses five thousand five hundred filaments in the square inch, while the perfectly pure Merino blood, from forty to fifty thousand in the same space.

How few ladies consider that they are daily carrying about with them some forty or fifty miles of hair upon their heads! Many a blonde belle has seventy miles of "threads of gold" to dress every morning. yet strange, so little entanglement amongst so many. A man's conscience is said to be elastic, but we are sure his hair is so. Take any filament from the head and put it upon the stretch, it will elongate and then resume its original length. Weber found that a hair would yield to nearly a third more than its longitude without breaking. Muschenbroeck proved that a single hair would suspend a four-ounce weight. I have performed several experiments to elucidate this subject, and have come to the conclusion that elasticity and strength depend upon the health of the grower, and also upon the colour of the comate material. For instance, in the case of one lady aged twenty-four years, who had dark-brown coarse hair, one filament measured twenty-seven inches, and suspended four ounces and a quarter without breaking. Another from the same head—thirty-one inches long,

stretched to forty-one inches, and then contracted to thirty-four inches, and bore up a four-ounce weight without disruption. This lady was in a state of robust health. In another case where the hair was of the same colour, and the lady of the same age, but in a bad state of health, it broke under the weight of two ounces. Appended are a few of the experiments :—

	Age.	Measured	Stretched to	Contracted to	Suspended
I. Dark Brown	24	31 in.	36 in.	34 in.	4 oz.
II. „	25	36 in.	46 in.	40 in.	3 oz.
III. Red	24	12 in.	16 in.	—	3 oz.
IV. Light Brown	6	13 in.	17 in.	—	3½ oz.
V. Dark	38	11¾ in.	14½ in.	—	3 oz.
VI. „	17	27½ in.	34 in.	—	2½ oz.
VII. Light Brown	80	7 in.	9 in.	7½ in.	1¼ oz.
VIII. Blonde	25	16 in.	—	—	2½ oz.
IX. „	10	11¼ in.	—	—	2¼ oz.

Case VII. was that of an elderly gentleman who had never used any oil or pomatum to his hair. Case IV. was that of a child whose hair had never been cut. Age and health have much to do with the suspending power of hair. Elderly people and delicate children have very brittle filaments, and the hair of the babe is very little elastic. I have seen some hair nearly as fine as the silkworm's thread, and others as coarse as the tail of a horse. One patient told me that a friend of hers was going to India, and was anxious to possess some durable memento of her early acquaintance to put into her locket. This lady had very coarse dark-brown hair, and sent some of it by post to her friend. In a few days a jocular letter arrived, returning the

incised lock with many thanks, "but, though living in London, she was well acquainted with horses, and *also their tails.*"

Hair is not only elastic, but durable. Time does not touch this part of the human being. It desiccates the skin, it crumbles the bones, it evaporates the fluids, it dries the muscles, and transforms the nerves into dust. The beautiful face becomes ugly, the sweet expression, like the aroma of a flower, soon fades away, but the hirsute covering defies the tyrant Time, and lives when all else is gone into its primeval dust. Locks in perfect preservation have been taken from the mummy cases of Egypt, that were placed therein thousands of years ago, yet the curl is not warped, nor the filament blanched since living hands stroked the dying head. In the British Museum is a peruke found in the Temple of Isis, at Thebes, the curls as crisp and fresh as when the fair wearer talked and walked upon the earth. No wonder that loving friends treasure the locks of their relations, and preserve them in golden caskets.

CHAPTER II.

ANATOMY AND PHYSIOLOGY.

A HAIR is a wonderful production. Whether we behold the golden filament that has been tossed aside by the human, or the covering that keeps out the cold from the lower animals, we see a structure of marvellous perfection ; so uniform is its arrangements, so certain is its minute structure. Some years ago the celebrated microscopist, Mr. Quekett, had some pieces of leather sent to him that had been found under the nails of a church door in the country. A tradition existed in the neighbourhood that the bodies of persons who were found guilty of sacrilege were, in the olden times, flayed, and their skins were nailed upon the doors of the parish church. Under the microscope this piece of dead material was placed, and the observer beheld human hairs projecting from the mass. An expert microscopist can always tell a human hair from any other animal production. In the detection of murder the distinction is sometimes useful. Suppose a hair be found upon a man's coat who had been seen in the neighbourhood where a person had been murdered. Should the microscope reveal this hair to

be of the same size, colour, and age as that of the victim, the circumstantial evidence would be of great service in the detection of the crime. A hair consists of a root, a shaft, and a point. The root is always alike, but the filament differs in size and shape according to race and to the climate in which the man dwells. Thus the European's straight, long, black or brown undulating hair, and the negro's woolly curls have diverse shaped filaments; in the former they are straight and almost tubular, whilst in the latter they are spirally twisted and flattened. The shape of the hairs also depends upon the place they occupy in the body; for instance, upon the beard the shaft is oval in contour, upon the head it is rounded. Hairs are of three sizes.

1. Long, soft hairs, from one to three feet in length, and 0'02‴ to 0'05‴ in thickness, as the hair of the head.

2. Short, stiff, thick hairs from a quarter to half an inch long, and 0'03‴ to 0'07‴ thick, that grow upon the eyebrows and beard.

3. Short, fine hairs, the down that coats the body, of 1‴ to 6‴ long, and 0'006‴ to 0'01 thick.

To know anything of hair we must become well acquainted with the microscope. The naked eye will discern its colour, quality, and quantity, but to possess real knowledge of its true structure it is necessary to magnify it by the aid of an achromatic microscope. When a human hair is placed under such an instrument and viewed by a glass of low power, it appears like a tube black or dark at the sides and light in the centre. If a drop of alcohol or solution of potash be added, and a thin strip of glass be placed upon it, the

light transmitted through the hair will show two structures, a medium more or less dark, somewhat granular and linear, and an outer somewhat dentated, the bark of the hair. If a grey hair be treated in the same way, three structures will appear, an inner, the medulla or pith irregularly packed with empty cells; a fibrous portion, the true substance of the hair, and a thin outer covering, the bark. The outer covering or bark looks like a fish's back covered with scales, irregularly placed. Each scale is quadrangular, transparent, flattened and curved, with no nucleus. These plates overlap each other like the tiles on a house-top, and their exposed edges are all directed towards the point of the hair. This causes a rasping sensation when we draw a hair the wrong way through our fingers, smooth when drawn from root to extremity, rough, when reversed. The outer covering is analogous to the bark of a tree, and serves for protection to the fibrous coat. It is thin, measuring about the 8,000th of an inch in thickness. The scales project somewhat, and give the hair a serrated appearance. Here we have the explanation why cotton and light substances frequently cling to the hair, and the process of felting depends upon this condition. In the hair of the common bat the cells are elongated, and project considerably from the shaft. In the Indian bat they are grouped in whirls at regular intervals, not unlike the leaves and buds on some of the broom tribes of plants.

We will now examine the *fibrous* structure of hair. To do this we place the portion of hair to be examined in a drop of strong sulphuric acid. We press upon he glass, and at once the fibrous layer becomes visible.

It consists of longitudinal striæ, or interrupted dark lines and dots.

If these be highly magnified they will be found to be composed of elongated nucleated cells, arranged in a linear order, containing the pigment or true colouring matter of the hair. There are cells found in this substance containing air. If the filament be teased with needles and partially broken down, the ultimate fibres will be seen as minute spindle-shaped spiculæ ; such are the true fibre-cells. This portion of the hair is the principal seat of colour, and the elasticity we have mentioned depends upon this fibrous coat. The general substance is stained with colour, and the air cavities are very numerous in fair, red, and light-brown, but are absent in black hair. The pigment granules in red hair form a beautiful object under the microscope, displaying the delicate golden tint of the cells, and the mellowed amber colour of the pigmentary material, which resembles the topaz.

In the grey hair of the mouse there exists a series of black and uncoloured cells alternately placed, and the blending of the one with the other produces the softened grey.

The central substance or medulla will now occupy our thoughts. First place a grey hair that has been previously soaked in turpentine upon a glass slide, and the pith will be seen to be colourless and transparent ; then expose the same hair to the atmosphere, apply heat, and the solution will all evaporate and leave a dark streak in the centre, which is the true medullary structure. This central portion will be seen to be made up of minute cells of about the 1,000th part of an inch in

breadth, which are filled with air. They follow no regular arrangement, but appear to be pushed into the interior. When first formed these were full of fluid, but by degrees the liquid has evaporated, and left them distended with air. This pith is absent in the minute and downy hairs of the body, and in those of the head in youth it is not to be found; but in old age it appears as the natural result of degeneration. In the hair of the eyebrows and eyelashes it is always visible. In the hirsute coverings of the rabbit, horse, dromedary, sable and mole, the medulla occupies the larger portion of the bulk of the hair. In the moose deer the whole texture of the hair is cellular, with the exception of the outer envelope.

Having now seen the shaft of the hair, we must dive into its root. As every tree and flower has its fibres to suck up nutriment from the earth, so every hair has a root fixed in a pouch in the skin, from which it is nourished. The root or hair-bulb is implanted into the subcutaneous fatty layer of the skin, and is surrounded by the hair-sac, which is a sheath formed by an involution of the skin with its layers. The root is softer than the shaft and lighter in colour, and is shaped like a champagne bottle, the base being hollowed out for the reception of the hair-gland. The root is larger in diameter than the shaft, for which it supplies a firm foundation in the skin, in consequence of being nearer the source of the nutritive fluids, and protected from evaporation. When a hair is plucked from the head with force, the root with its sheath can be seen. When this is placed under the microscope with a weak solution of caustic potash or ammonia, the external and internal

sheath will become visible. The hair-bulb is implanted upon an elongated papilla, which is the true hair-germ, and from which the shaft derives its nutriment, and by which it is built up.

Surrounding each filament are the inner and outer root-sheaths, and next to these is the proper hair-sac, consisting of two fibrous layers and an internal structureless membrane.

We must just glance in the first place at the root-sheath.

1. Its external layer. This consists of very small oval-shaped cells of which the long axis is transverse. It is continuous with the rete mucosum of the skin.

The *internal* has cells without nuclei, having a longitudinal arrangement. Lining this membrane is a third layer of nucleated cells, called Huxley's layer.

We will now consider the hair-sac, which has three membranes. It is a tubular canal dipping into the substance of the skin, and carrying with it its three coverings—the cutis, basement membrane, and epidermis. The fibrous portion or external layer is very vascular, and consists of two layers. The outer is the thicker, and contains vessels and nerves. The inner is connected with the inner layer. Externally it touches the surrounding areolar tissue, and above, it is continuous with the outer layer of the cutis. The basement membrane is transparent and structureless, and extends from the base of the follicle without covering the papilla, as far as the inner root-sheath.

The most important point of all is the papilla or germ of hair life. This rises up from the base of the

follicle like a mushroom, and is composed of fibrous areolar tissue, with nuclei and fat granules.

To simplify these many casements, we must compare a living hair to a living man dressed for a walk. There stands the hair covered with its flannel waistcoat, and outside of that its waistcoat, coat and overcoat. Such are the coverings of each individual hair in the head.

Each of these pouches in which the hair tube grows is furnished with a pair of oil glands, which open into the root-sheath at a short distance from the skin. Minute muscles are attached to each of these tubes below the oil glands, and the other extremity is affixed to the surface portion of the true skin. The middle of the muscles touches the oil glands, so that when contraction takes place, the hair is elevated, and the oil gland compressed, thus producing the expulsion of the secretion into the hair tube. These muscles cause the hair to stand on end in fright, and produce the condition from cold upon the skin called "goose skin."

The hair is not planted like a row of trees in a line and upright, but in groups and pairs and in a slanting direction from the skin. It follows general laws. Upon the head we see all the hair radiating from a common centre, from the crown to every part of the circumference. On the forehead the downy hairs proceed from the middle vertical line. There is a centre in each arm-pit from which the hairs spread over the front of the chest, down the arm, along the side of the trunk, and down the inner side of the thigh. In fact, all over the body, the bloom of hair appears to have been blown about by a breeze, beautifully guided by a skilled artificer. Having now examined our plant and the

flower-pot in which it grows, we will consider the mode by which it begets life, lives, and grows.

In the unborn babe of three months' fœtal existence, the rudiments of hair life begin to develop. The eyebrows commence the growth, and then the head, back, and chest, follow the same example, and by the sixth month hair can be seen upon the body. Its life begins by the formation of small globular masses resembling buds on the under surface of the rete mucosum of the skin. These buds grow inwards into the corium, become like Florence oil-flasks in shape, and are composed of nucleated cells, identical in structure with those of the rete mucosum. The central cells become elongated, separate from, and of a darker colour, than the peripheral cell. Gradually they change into a hair and an inner root-sheath, whilst the external cells become converted into the outer root-sheath, around which are developed the three membranes of the hair-sac. The primitive hair is developed in all its completeness, with a point, shaft, and bulb. At the same time that the growth is taking place downwards from the rete mucosum, a papilla is developed from the corium, and extends outwards to penetrate its fundus and develop the first trace of the future hair.

Simson says that the young hair is bent upon itself, and finds its way to the skin in the form of a loop. After birth the fœtal hairs are shed, and new hairs are formed in the old follicles, which displace the original set, like the permanent teeth of childhood, which push out the milk teeth.

If a hair be pulled out from the head, how is it reproduced? Much in the same way as in fœtal life. The

cells of the root-sheath protrude, and form a bud, and this elongates into the deeper layers of the corium, carrying with it the hair-sac, and having enclosed in its substance a hair papilla. Then the central and peripheral cells assume a different character, the one becoming a being, the other its coat; the one a hair, the other its outer root-sheath. The new comer pushes up the old inhabitant, and when strong enough to live out of doors ejects him from his old home, and takes the place of his parent.

The hair lives like a tree, sucking up moisture from the hair-sac in which it grows. New cells are constantly being formed from the hair papilla, and these are pushed on to form the substance of the hair, whilst new ones take their place. Hair does not grow from its point, but the new cells push old ones into the medulla and fibrous portions of the hair; evaporation takes place, the cells lose their liquid portion and become either filled with air or metamorphosed into fibrous tissue, and thence into the scaly cortical structure like the production of cuticle in the skin of the body.

The hair derives its nutriment from the body, and according to the state of the system so is the hair. We notice this in our everyday life; the condition of a horse is known by his coat. I have known judges of horses at once declare that a horse had worms from the condition of his hair, and so it proved. If in the lower animals such things are visible, why is it we do not recognize the same in the human being? We hear of cases of hair blanched in a single night from grief, fear, or cold.

Instances of this in Mary Queen of Scots, Marie

Antoinette, and others, prove that hair is a sensitive part of our nature. As age advances, and the senile arch appears in the eye, a change comes over the productive organs of hair life. In youth, the dark filament is full of black pigment, not only in the fibrous coat, but also in the medulla; and the bulb, like a plethoric man, is largely distended ; but when the decline of life begins, this portion of the hair degenerates, is only slightly swollen, and gradually tapers to a point, the cavity in its base becomes contracted, and the cells, which in early life were coloured, are seen to be destitute of pigment, except in the medullary portion where nature tries to keep to its work, but in time fails, and the " blossoms of the grave " are the result. The root, unable to make any coloured material, goes on forming the fibrous structure until the last, but when the last comes and the conical cavity in which the papilla lived becomes obliterated, no new cells are formed, and death is the result. There are some few cases recorded, where after all this has taken place and eighty years of life have been passed, nature has begun work again, has commenced *de novo*, and fabricated new hair ; indeed has formed every thing anew, even to a fresh set of teeth. As long as life lasts hair may continue to grow, and some have even ventured to state that after death it goes on growing. Aristotle and Pliny believed such to be the case, and in later days the celebrated Bichat held a similar opinion. It is recorded that when the sarcophagus containing the head of Charles I. was opened, the hair was found to have grown to a prodigious length. Wulferus gives an account of a woman buried at Nuremberg, whose

grave was opened forty-three years after her death, and hair was found issuing plentifully through the clefts of the coffin. We have some doubts upon this subject, and cannot endorse what has been written. As far as our own experience goes, *hair does not grow after death.*

Hair is hygroscopic, and absorbs moisture from the atmosphere. Young ladies who have been into a crowded ballroom, will tell you how the crisp curls drooped, and the stiff dry ligature became moist and soft. It was the aqueous vapour thrown off from the dancers, by insensible perspiration, which took the beauty from the curls. Hair is used to make toy barometers for this reason. Hair is also electric. If a lady stand upon an insulated stool and have her hair combed quickly, enough electricity will be generated to send forth sparks from her body.

The chemical composition of hair is allied to other horny tissues, such as the nails of the fingers and toes, the horns and the hoofs of mammals, and the whalebone of commerce. All contain a large amount of animal matter and sulphur. Hair consists of—

Carbon	...	...	...	49·9
Hydrogen	...	...	...	6·4
Nitrogen	...	...	...	17·1
Oxygen	...	...	...	21·6
Sulphur	...	...	...	5·

The chief constituent is a nitrogenous substance containing sulphur, which is the cause of the unpleasant odour given out when hair is burnt. This material is

soluble in alkalies, with the development of ammonia. It is insoluble in boiling acetic acid, which thus distinguishes it from horn and epidermis, from albumen and fibrine. It is quite soluble in strong sulphuric acid and in liquor potassæ. There are various coloured oily matters in different kinds of hair.

Red hair contains a reddish oil, a large proportion of sulphur, and a small quantity of iron.

Black possesses a large proportion of oxygen and sulphur, but less hydrogen and carbon.

White has a white oil with phosphate of magnesia, and in the aged, phosphate of lime exists in abundance.

Fair has the most oxygen and sulphur, but less carbon and hydrogen than hair of any other colour.

Brown yields the largest proportion of carbon, with smaller of hydrogen, oxygen, and sulphur.

When hair is burnt, the ash yields oxide of iron, oxide of manganese and silica. White hair yields sulphate of aluminia. The action of hair dyes depends upon the chemical changes between the sulphur in the cranial covering and the metallic material used.

Thus the salts of silver and manganese blacken the hair by forming sulphurets of the metals, and chlorine and its salts decolorize it. Alkalies, such as potash and soda, partially bleach it. Peroxide of hydrogen lightens dark hair imperfectly, and therefore fails as a dye. Bichloride of mercury with a mordant of sulphide of ammonium produces a red tint, but this subject

will be discussed more fully in the article upon "hair dyes."

Some people object to the hair being cut upon the ground that it is not natural to do so. They quote the various beasts of the field as proofs that such an operation is unnecessary. It is true that there is a constant shedding of hair from man down to the lower mammals, analogous to the decadence of the evergreen shrubs, which all the year round are shedding their leaves, but so gradually that they are never naked, for as fast as one leaf is thrown off another is reproduced; it is so also with the feathered and hairy tribes. But man has had knowledge given to him that he might do the right and judge what is best. It is no more unnatural to cut the hair than to pare the nails. Did we not look after our fingers we should have claws like birds' growing from them. Hair grows continually, the faster when it is cut, and for this reason, the blood-vessels at the root of the hair secrete an amount of nutritive fluid, in order to keep the whole hair continually moist and growing. If the hair be cut, more fluid is thrown out than the shortened hair can use, and therefore the excess either goes to make fresh growths, or to strengthen and lengthen the shortened hairs. Hair has a typical length. With some it is a foot, with others it is a yard in length. The greater its length, the larger amount of fluid will it require. The falling off of the hair will be considered in treating of baldness. Hair is strong and coarse in the beard, fine and downy upon the skin. Upon the new-born babe it resembles the bloom upon the peach, upon the old man the bristle of the wild boar. In one it is as fine as silk, in another

as coarse as tow. In the animal world it transposes itself into wool, or floats in the air as a feather. In the porcupine it becomes a horny quill, in the spider a hair covered with hairs, like an exquisitely formed miniature feather.

CHAPTER III.

EXCESS OF HAIR—HIRSUTIES.

It is possible to have too much of a good thing, so thought Phætusa of Abdera, the beautiful wife of Pytheus, who one morning awoke with pains and redness of her joints, which were followed with a hairy garment, covering her whole body, like a vesture of camel's hair. But this was not all; her sweet voice changed to the hoarseness of a raven, and a long beard grew from her chin. This is the earliest recorded nstance of such a freak of nature. Hippocrates is our informant, who lived more than four hundred years before Christ. From then till now we have many such instances chronicled.

Evelyn informs us that Barbara Van Beck, a young married woman, was exhibited in London, in the year 1657, having a long lock of hair emerging from each ear, a prolix beard, moustachios, and long locks growing on the middle of her nose, like those of an Iceland dog, of a bright brown colour, and as fine as well-dressed flax. She was a German. Another was seen in 1668 by Pepys, with a black beard, which began to grow at seven years of age.

An amazon was taken by the Prussians at the battle

of Pultowa, whose beard measured a yard and a-half in length. Many cases are recorded by Schenkins, Ambrose Paré, Ruggieri, Yule, Fry, and Wilson, of hairy men and women, prodigies in their time, who were thus visited by this strange malady. We are told that there is in the empire of Japan a whole race of some fifty thousand people possessing the name of "Ainos or Mosinos," who are covered with hair from head to foot. History tells us of the hirsute St. Angus, who worked in his barn till the scattered seed lodged in his comate garment and took root in the dirt beneath; also of the unlovely Julia Pastrana, who exhibited herself for pay. At this time, at the court of Ava, a man and his daughter are living, who were seen by Captain Youle in 1855, and described by him in his "Narrative of the Mission sent by the Governor-General of India to the Court of Ava."

Shwe-Maon was a Burmese, whose entire face was covered with hair. On the forehead it was eight inches long, but on the nose and chin only four inches in length. It was a silver-grey colour, silky and straight. His whole body, with the exception of the hands and feet, was covered with the same coloured filaments. The account he gave of himself was, that at his birth his ears alone were covered with hair about two inches long, and of flaxen colour. At six years of age it began to grow upon his forehead, and from thence spread all over the body. He was stunted in growth, being only five feet three and a-half inches high, deficient in teeth, late in the second dentition, being twenty years of age before he shed the first set, and not arriving at puberty till twenty summers had passed over his head. Shwe-

Maon fell in love, and married a wife, and begat four little girls, all of whom were right and healthy, and presented no hirsute tendency, with the exception of the youngest, who was born with hair inside the ear. At six months old it spread all over the ears, and then increased upon different parts of the body. This young lady grew up to be a woman, and married. Two boys called her mother, the younger of whom began to grow a covering of hair, commencing at the ear and extending over the whole frame. Here we see hereditary tendency developing. Shwe-Maon began the new race, and two other generations are following in his footsteps, and are reproducing this strange freak of nature.

Mr. Paget published a case of excessive growth of hair in the *Lancet* of August, 1867.

A child, twelve years of age, had a complete mantle of hair upon the left shoulder, arm, and back, so that she resembled a monkey, especially as the arm was withered. Most of these congenital conditions have existed with deficiency or excess of teeth. This occurs not only in the family at Ava, but also in that of the Spanish dancer, Julia Pastrana; in the one some teeth were wanting, in the other two rows existed.

There is some secret connection between the dental and hirsute life that we have not yet fathomed. In the cases where hair has been renewed in old age, teeth have invariably been reproduced.

I propose to divide this subject into two parts :—

Hirsuties from birth. { 1. General. 2. Local.

Hirsuties from disease.

The first part we have considered, viz., the hairy men and women—the show-folks of the world. We now come to a very common condition, namely, local excesses of hair. These are also congenital, and are called nævi, or moles. Sometimes they are seen on the face, and sometimes upon the body. Alibert saw a case, in which a young lady was covered all over the body with these ugly hairy growths. They are supposed to be maternal marks—the result of some impression made upon the mother's mind when pregnant. I saw a young lady with one upon her arm the shape and size of a mouse, who declared it was the result of a fright which her mother received before she was born. The cause of these we know not, but the cure is simple. We need no longer the knife to extirpate these disfiguring blemishes, for chemistry has placed in our hands remedies that will remove these excrescences.

A hairy nævus is an hypertrophy of the integument and sebaceous glands, with usually a deposit of pigment covered with hair. The filaments are short and stiff, but sometimes attain to a considerable length. They are often hereditary and favour the face, especially the upper lip. They are usually raised above the level of the skin.

Hirsuties, from disease or condition, removed from perfect health.—We often see in young people an excess of growth of hair upon the arms. This depends upon the state of health entirely, for I have frequently cured these cases by simply giving steel and cod-liver oil. Hairs upon the face at puberty, with ladies, are often relieved by the same method.

Upon the upper lip, in aged single women, hair is

prone to grow too vigorously, and we are often consulted to do something for this condition.

In the female, the hairy system appears to depend upon the regular uterine functions. Anything that interferes with the natural and healthy changes going on in the system, reflects itself upon the skin—sometimes producing acne, at others hirsute increase.

From the time of Hippocrates down to the present day the same thing has been noticed. The human body is so beautifully adapted, that if but one wheel in the whole machinery should go wrong, all the rest suffer.

A lady consulted me last year whose hair was fast disappearing from her head and re-appearing upon her body. She was thirty years of age, and had enjoyed good health till a year previous to her visit to me, when a terrific fright occurred to her—the whole system at once seemed to stagnate—the uterine function ceased, and has never yet re-appeared. She became irritable in temper, nervous at the slightest sound, and every portion of her body began to show hairs of dark brown colour and excessive in length. The beard began to grow, the moustache to appear, and the whiskers strove to keep pace with the chin. The razor was in daily use, and her life was annoyed with the constant demand upon her time to get rid of her enemy. The Grecian ladies used the lamp to singe off superfluous hairs; but depilatories are of no use. Constitutional causes are at the root, it is in vain to sear the leaves.

Now these cases of wild animal growth upon the body have been preceded by nervous shock. In every

case, without exception, that I have seen, some neurose derangement has occurred.

Hair is prone to grow within the ears. A gentleman once came under my care, suffering from deafness. He had become, by degrees, irritable as well as hard of hearing, always pushing his fingers into his ears to remove some supposed obstruction. Upon examination of the auditory canal I found a large accumulation, which became easily removed by the syringe and warm water. This concretion was composed of a mass of dead hairs that had been shed like autumn leaves, and had been retained by the wax and formed into a solid substance. My patient went away rejoicing in hearing so well. Some few months after, this gentleman's daughter consulted me for a peculiar creeping sensation in her ears. She imagined that an earwig had found its way into one of them. Upon examination, we found a forest of hairs growing in both ears, just like that of her father's, and in the one that gave her uneasiness some loose filaments were seen resting upon the drum. This young lady had also excess of growth upon the face—a moustache and whisker in embryo. The syringe and tonics soon gave relief.

In phthisis and other strumous diseases, exuberance of comate structure has been observed. Mothers read of Samson's locks, and admiringly gaze upon their offspring. But to the physician a different tale is being unravelled. He sees the clear, precocious, active child, with its highly sensitive nervous system, the skin thin and transparent, like the waters of a deep lagoon, blue veins meandering upon its surface like rivulets feeding the stream, the ready blush upon the cheek,

resembling ripened fruit, and the bright, large lustrous eye, that looks as if it could fathom eternity; then over this the long black or brown eyelashes, and the silken hair floating in the breeze. These are the visible signs of a coming storm. Tubercle somewhere threatens.

The child with rickets comes now before us. Here we see the antithesis of the case just mentioned, a dull stupid child with lethargic mind and body—a living lump of dough—with small broad face and muddy skin, like bad tallow covered with downy hairs. Here the child is backward in everything but disease. The teeth are not cut till late in the infantile life, it does not walk till other children run, and as to talking the parents are always in fear of their little one being dumb. In the distance one sees a dark cloud of brain mischief brewing, or glandular degeneration coming on.

In epilepsy and mania, hair is sometimes in excess, and idiots have often more than their share upon the face. Dr. Mitchell describes an ape-faced idiot with heavy eyebrows and short stiff hairs growing upon the cheeks and face. Pinel tells of another whose back, loins, and shoulders were covered with flexible hairs, one or two inches long. A patient consulted me a few weeks ago, whose mother was insane; she had one sister in a lunatic asylum, another nearly raving with neuralgia (the neuralgia of neurose change), and she, herself, epileptic. She was but thirty years of age, and grew a famous moustache and beard.

Treatment.—The cause of this condition must first be found out, and, if possible, removed. Should it be the general hirsuties we have to do with, then a course

of regular medical treatment will be necessary. Steel stands pre-eminent as a remedy, given for six months at least; the constipation produced thereby, to be obviated by a compound rhubarb pill once or twice a week. Tepid baths to be used frequently, and the hairy surface to be rubbed gently twice a week with solution of potash (liq. potass.) diluted with spirits of wine, equal parts. The following morning a tepid bath and profusion of soap, well lathered, but not rubbed hard enough to give pain. The potash solution should be laid on with a piece of lint tied to a tooth-brush handle or a piece of stick, and lightly laid upon the comate material. If nicely used no damage will be done to the skin, the solution dissolving the cuticle and hair, and leaving a fair, white, smooth surface behind. Hairs should never be plucked out, and the usual depilatories are worse than useless. Hair is quite soluble in solution of potash; sulphuric acid also dissolves it, but requires some time to do so. The depilatories chiefly used at the present day contain either quicklime, arsenic, sulphuret of antimony, or subcarbonate of potash and sulphuret of barium.

Fire is the most pungent depilatory known, and was used largely amongst the ancients, from Dionysius of Sicily, who singed his beard with walnut-shells, heated to whiteness, down to the old dame mentioned by Aristophanes, who depilated her obnoxious beard with the Athenian lamp. I was consulted once by a patient who had lost her eyebrows from her cap catching fire; but no remedy could replace the destroyed bulbs. The ladies in the Eastern harems use a material called "Rusma," made from powdered

arsenical iron pyrites, which are found in Galatia, and quicklime. They mix the compound with rose-water to the consistence of cream, and when no observer is near they place it upon the offending place for five minutes until the skin begins to sting, and then with an ivory paper-knife and plentiful ablution go through the mock process of shaving. This is one of the chief "psilothrons" or compounds to remove superfluous hairs. Depilatories in our day flourish under varied names, but the basis of nearly all is arsenic or quicklime.

From Plenck's "Pasta Epilatoria" down to the shoemaker's wax plaster, from China and Turkey down to the fellmonger's tank in the back lanes of Bermondsey, young and old, rich and poor, are willing to feed their vanity by spending golden coins or spare half-pence to get rid of some hirsute intruder that has taken up its habitation upon some objectionable position. I never use any other than potash for the general condition of excess of hair, but in hairy nævi other more potent methods are required.

Local.—Maternal marks or moles can be easily removed by applying the acid nitrate of mercury, and letting it remain upon the diseased patch till it dries. Silently it soaks down into the root of the hair, and destroys, without much pain, the papilla. The mouse nævi before mentioned, measuring two and a-half inches by one inch, was cured by this remedy. My plan is to take a fine pointed glass tube, and having dipt it in the caustic solution, to dot all round the hirsute mass upon the healthy skin where they both join. Then to dot points through the mass, like the white squares

upon a chess-board, leaving the black ones to be treated in a similar manner a fortnight hence. By such a method you prevent too great an inflammatory action setting in, and make a less scar in the future. Small nævi are cured by one application. Sometimes potass fusa is useful, but the solution of potash is far preferable.

Hirsuties from disease require but a cursory glance, as the exuberance of hair is but the result of a disease which requires the aid of the physician. Whether we look upon consumption, rickets, or hydrocephalus, each morbid condition requires medical aid.

There is one remedy for epilation, which is sometimes of service amongst elderly people, namely, sulphur ointment, especially the black sulphur unguent of the old Pharmacopœia. A gentleman once consulted me for eczema, who had been completely depilated by the use of sulphur ointment in childhood for scabies. Forty years after, when he saw me, there was not a single hair left upon his body.

CHAPTER IV.

ALOPECIA OR BALDNESS.

ALOPECIA was so called, by Galen and Aristotle, from the Greek *alopekia*. It is a state of baldness, resembling a fox with the mange; hence its name. Celsus endorses the same term. In the present day it is called Trichorrhœa. For convenience it has been divided into three varieties. 1. Alopecia vulgaris. 2. Total loss of hair or calvities. 3. Local baldness or area.

Alopecia vulgaris, trichorrhœa, or defluvium capillorum, is simply progressive falling of the hair, or thinning of the cranial covering. It often occurs during the convalescence of fever or after parturition. It belongs mostly to the female sex. The patient combs out the hair by handfuls, until the comate structure by degrees disappears and becomes beautifully less, and a whitened skin of barrenness takes the place of Nature's drapery. This was the disease with which the proud daughters of Zion were threatened, as a judgment for their iniquity, referred to by Isaiah, B.C. 760: "Instead of well set hair, baldness." (Isaiah iii. 24.) In nature we behold this condition without disease, for instance, in the moulting of birds, and the

change of coat in horses. In some mammalia it occurs once only in the year, in others both in spring and autumn. In some men and women an annual diminution exists, but as some filaments are shed fresh ones are ready to take their place, so that sterility is not produced. If the power of repair be not equal to the fall, baldness ensues. This condition is very common. Ladies come before us with this history—depression of spirits, failure of power, headache, giddiness, aching legs, and general debility. The hair, previously thick and glossy, begins to loosen, the partings to become broader, and the brush to be filled daily, until nature's covering is by degrees exhausted and the scalp looks like the head of a barn-door turkey. On examination of the filaments we find them desiccated, withered, and broken; the roots wasted and shrunken; the skin dry, scurfy, and hot; in fact, starved. The cause of this malady is, without doubt, exhausted nutrition. The supply of nourishment to the bulb is not sufficient to carry on the hair manufactory. It is beautiful to see how Nature tries to cover the barrenness, by making use of what little material she has at command; but the young hairs she makes are so fine and silky, that they fall at the slightest touch. Here is no destruction of hair, but arrested formation, for the nerve is still entire, but too weak to do its work. The blood-vessels contain the vital fluid, but lazily it circulates, as if tired of its work; in fact, nutrition is nearly bankrupt, and the factory in which the hair is made is closed. This morbid condition follows upon the heels of such diseases as typhus and scarlet fever. Fatigue and sorrow, vigils and fasts, or the grief that is not easily

assuaged, leave their trail behind. Vice of all kinds, from anger to syphilis, has something to do in producing this morbid phenomenon. In the secondary stage of syphilis the hair frequently comes off, but as the disease is conquered it re-appears. Shakespeare, in his "Comedy of Errors," shows his knowledge of this fact. That syphilis is not the common cause of trichorrhœa will be seen by Mr. Berkeley Hill's statement, that at the Lock Hospital, out of 221 women suffering with this terrible disorder, only six had falling off of the hair.* It is strange that though syphilis has been known for at least eighteen hundred years, we find no mention of its ravages upon the hair until the sixteenth century. Fracastor, writing from Venice in 1546, says: "A circumstance which has astonished everybody is the falling off of the hair of the head and other parts of the body—this gives a ridiculous appearance; some have no beard, others no eyebrows, some are bald." Brassavole, writing from the same place a few years later, states: "That for twenty years (*i.e.*, since 1533) venereal symptoms have been observed, which render it doubtful whether the disease is declining or whether it has changed its character. The first of these symptoms is the *falling off of the hair* . . . . . for one cannot help laughing on seeing men without beards, eyebrows, or eyelashes." Fallopius corroborates the same fact in these words: "During the last forty years (*i.e.*, before 1534) there was *no falling off of the hair;* but it commenced about thirty years ago." Diday observed this condition in fifty-three out of sixty syphilitic patients; but the

* See *Lancet*, November 28th, 1868.

same has not been found in England. Hair certainly comes off in this disease, but not sufficiently, as a rule, to cause baldness. It falls in patches, commencing chiefly over the temporal bones. The slightest pull will root out the filaments, and a hard brush will become filled with withered hairs.

Treatment. If failure of nerve power be the cause of falling hair, if the scalp be pale, pasty, and relaxed, and the pores large and dilated, or crusted with a mortar-like substance, then the head should be washed twice a week with the yolk of an egg beaten up in a glass of sherry wine: this should be well rubbed into the remaining roots of the hair. The head should then be well washed with warm water, followed by a cold douche. As an internal remedy, tincture of the sesquichloride of iron should be given three times a day in water directly after meals. If this fail, tincture of nux vomica with a mineral acid or quinine may be administered. Should anæmia be at the foundation of this disorder, iron and cod-liver oil must be given freely internally, and rum and oil applied externally.

If pregnancy be the producing cause, after delivery tincture of cantharides should be rubbed well into the scalp three times a week; but if bodily exhaustion or fatigue of mind be the proximate source, then rest or change of air with sea bathing will effect a cure. After fevers, small-pox, and some inflammations, the hair becomes deciduous, then time and tonics are productive of much good. In chronic dysentery the hair often looks very thin, and in rickets the scalp becomes quite denuded. In diseases of the stomach, the altera-

tion in the general nutrition evidences itself by loss of teeth and hair. All these affections can be rectified by striking at the original malady. If the poison of syphilis be loitering in the body, an antidote to that destructive agent must be applied. Sometimes mercury may be required internally, but iodide of potassium, from three to five grains three times a day, is generally sufficient to remove the evil. This remedy should be continued for weeks or even months, until hair is reproduced. A lotion, composed of two grains of bichloride of mercury in one ounce of tincture of cantharides, will expedite the return of the hair. This should be applied to the scalp three times a week, and be allowed to dry. An ointment of calomel and benzoated lard, rubbed daily into the head, will sometimes be of great service. One drachm of the former to two ounces of the latter, perfumed with any essential oil, will form a good pomade for this state of degeneration. All the cases of baldness from syphilis recover if properly treated. I have not seen a single instance of failure. But internal treatment must be continued till the whole poison is neutralised. This will be seen by the hair ceasing to fall off, by the dry look of the filaments subsiding, by return of the glossiness and brilliancy; for when syphilis begins its destructive work upon the head, we first notice an unusual dryness of the comate structure, the gloss disappears, and each filament becomes brittle and frayed: its colour changes from black to grey or from brown to black. Depositions of pigment are often observed, and splitting of the fibrous structure is not uncommon. Sometimes the hair looks as if it were infested by a parasite, one

portion of the structure being constricted whilst another is enlarged. Mr. E. Wilson had a case where the hair naturally was of a red colour; but when the poison of syphilis entered the body, the hair filaments were full of black pigment in various parts, and an organic change in some portions was visible. Here was an arrest of development; the fibrous structure was not formed, and a grumous mass occupied the medulla.

2. Alopecia calva, or calvities, is the baldness of youth; the condition of hirsute sterility that occurs before the age of forty. The bald have existed amongst men since creation, and now have become nearly a distinct race of mankind. A bald parent begets a bald child. Amongst the Israelites this diathesis was a reproach; not only did the children of Bethel shout after the youthful prophet Elisha, "Go up, thou bald-head," but no man in this condition was eligible for the priest's office. Herodotus informs us that the Egyptians were never bald; attributing this to the constant use of the razor upon the head. Unfortunately Sir G. Wilkinson, in his book upon the ancient Egyptians, fails to corroborate the truthfulness of this assertion, for he has produced a deed in Greek of the time of Cleopatra Cocce and Ptolemy Alexander I., relating to the sale of a piece of land at Thebes, in which one out of the five individuals concerned is thus described: "Pamonthes, aged about forty-five, of middle size, dark complexion and handsome figure, *bald*, round-faced, and straight-nosed." * The Greeks always represented Æsculapius as bald. Aristophanes was the same, hence his exclamation: "Bear to the

* "Ancient Egyptians," vol. ii, p. 201.

bald man; give some of the sweetmeats to the bald man, and do not take away from the most noble of poets who has a shining forehead."

Æschylus lost his life through his polished head. He who in childhood had gathered ripe clusters in the vineyards of Eleusis, in his youth had fought valiantly at the battles of Marathon and Salamis, fell a victim in his eventide to an eagle's piercing eye. He was walking in his garden at Gela, when, in the heavens above, an eagle poised with a large tortoise in her claws, seeing the white bald pate of the poet, and mistaking it for a stone, the bird let fall the living mass upon the laurelled brow of the warrior, and smashed the shell of the tortoise upon his naked skull. Both fell dead, B.C. 456.

Phidias, the great Athenian sculptor, who lived B.C. 480, was likewise as hairless as an apple. He was not allowed by the Greeks to attach his name to his masterpieces, but, nothing daunted by this restriction, he sculptured a likeness of himself, old and bald, upon the shield of Minerva; thus handing down to posterity something more than a name.

Lucian comically informs us that amongst the Selenites a bald head is a mark of beauty; that curly and bushy heads are an abomination to them. In the comets it is just the reverse, for there every man must possess long hair and a bushy beard, if he would advance to the claims of comeliness. In 1579 a book was published to prove that alopecia was better than a comate covering. The title-page ran thus:—"A parodoxe, proving by reason and example, that baldnesse is much better than bushie haire, &c. Written

by that excellent philosopher, Synesius, Bishop of Thebes (or as some say) Cyren. Englished by Abraham Fleming."

Baldness may have its use. Had it not been for the poor jackdaw of Rheims we should have never known the terrible consequences of a cardinal's curse. M. Aurelius Carus used his affliction to illustrate his words. When he led his army against the Persians, his personal valour so awed the Parsee king that he sued for peace. The ambassadors, on arriving at the Roman camp, saw the emperor seated upon the grass eating his supper of salt pork and peas, and had it not been for the purple robe over his shoulders would not have addressed him. He told the envoys that if their master did not at once submit that he would make Persia as bare of trees and standing corn as his own head was of hair. Suiting the action to the word, he removed his cap and displayed his head, totally devoid of hair.

Herillus, the great Carthaginian philosopher, was persuaded by Zeno to have his head shaved, that he might disgust his many followers and save himself from being like a comet, having a tail of admirers behind. Ariston the Bald found the disadvantage of hairlessness, and fell a victim to sunstroke, for, although he wrote seven books on wisdom, he was not wise enough to keep out of the sun or wear a wig.

Celsus, who lived in the reign of Augustus Cæsar, wrote a short, but very lucid account of this disease, which we shall quote verbatim :—

"There are two kinds of areæ. Both of them agree in this, that the surface of the skin mortifying, the

hairs first decay and then fall off. . . . . That which is called alopecia spreads in no certain form. It is found both in the hair of the head and in the beard. That which, from its likeness to a serpent, is called ophiasis, begins at the hinder part of the head, its breadth not exceeding two fingers; it creeps with two heads to the ears; in some even to the forehead, till the two heads are joined in the fore-part. The former species happens at any age, the latter commonly to infants. The first hardly ever terminates without medicine; the other often disappears of itself. Some scarify these kinds of areæ gently with a knife; others anoint them with escharotic medicines mixed with oil; and especially burnt paper. Others apply turpentine, resin, with thrapsia. But nothing is better than daily shaving with a razor; because, when the cuticula is gradually cut off, the small roots of the hairs are laid bare. Nor should this be given over till it appears that the hairs grow thick. It is sufficient to rub the part that is frequently shaved with copperas."*

Considering the time that this was written, the account is very well put together, and we recognise our two forms, the local and the general.

The calvité of youth is essentially hereditary, and, like the naked head of the male turkey, belongs only to the masculine race. The female turkey's head is covered with feathers. The vulture is bald in both sexes, so we see that man is not the only bald animal. Dr. Darwin tells us that "Peculiarities appearing in the males of our domestic breeds are often transmitted either exclusively or in a much greater degree to males

* "Celsus," book vi. chap. iv.

alone."* This is a fact in relation to baldness. All general alopecia is the result of some hereditary condition. Bald people are usually very prolific. Some father with a head like the dome of the Pantheon begets a child. If it be a daughter, the race is stamped out; but if it be a son, a chip of the old block becomes manifest. If the father was bald at forty, the son will be so likewise at thirty-eight years of age; and the male grandchildren, for generations to come, will be all as hairless as an egg, beginning and receding until at last the baby born will exhibit, to the mother's discomfort, "a head shining like glass." It is a fact that each generation develops the baldness earlier than the previous generation. Women never hand down hairless tendencies, though they do bodily deformities, such as excess of fingers, &c. This hereditary tendency is one of the mysteries of life. What that occult something is that sleeps in one generation and awakes in another, the scalpel of the anatomist cannot discover, neither can chemistry analyse. The microscope that brings to light the invisible fails to magnify these minutiæ. Silently it works from the germinal spot of life even to the grave, permeating every tissue, though unperceived, working as well in the egg-shell as in the human, and appearing at last colouring the feathers of the one, shaping the features of the other, and surprising us by its marvellous reticence and power. We know not, even at this day, why a hairy parent should produce a like child or a lunatic an epileptic offspring. A grandfather with a mole upon his face hands this mark down to his

* "Animals and Plants under Domestication."

children's children, while his own sons and daughters have escaped. We see daily such instances as this: A proud ancestor spends the patrimonial estate and his own health with riotous living, bequeathing to his descendants his gout instead of his gold, his baldness in the place of well-set hair. There is also a condition of baldness from birth. A healthy child fails to grow the natural covering until the second or third year of life, but then it appears, and thus differs from the hereditary condition that we have described. Rayer describes the case of a man who was a patient in the Hospital de la Charité. There was congenital absence, but Nature afterwards began to grow her usual covering. This man's cranium was covered with down, white, silky, and fine as that on an infant's scalp. A few black specks upon the temples appeared where pigment had begun to deposit, but the eyelids, eyebrows, and whole body grew a few sparse and weak hairs, just enough to show that the bulbs were there, though too feeble to produce a crop. This man's mother and two sisters had abundant hair, but his father was as barren as himself. Females sometimes become bald, although very rarely; when they do it is generally caused by failure of nerve-supply, and rarely, if ever, from hereditary transmission. Children as young as five years of age have been affected; in fact, the worst cases that I have seen became bald under twenty years of age. I am looking now with anxious eyes upon a boy whose father came under my care, having been bald from twenty years of age. His father was so at twenty-five, and his uncles, grandfather, and all the male members of the family in his

recollection were in the same condition. The light-haired are more prone to alopecia than the dark, especially those where the red hue predominates. On examination of the scalp, we find that the skin is remarkably thin, transparent, and destitute of fat, that the veins are meandering nearer the surface than they do in health, and that the sutures which unite the bones may be distinctly felt. By-and-by a polish comes, the whole secreting structure dies, and the baldness of old age is exemplified.

Causes.—The common source is defective nutrition. This may be caused by a diminution of the supply of blood to the part, or a cutting off of the nervous energy.

Men who are bald must be considered prematurely old, although they often live to the full term of three-score and ten years. Many of the cases that come before the physician are found to possess atheromatous changes in the blood-vessels, weakened hearts, or enfeebled vital powers. Aortic valve disease is commonly associated with alopecia; a portion of the blood sent to supply the brain and other parts, regurgitating back into the left ventricle again. If the calibre of the minute capillaries be reduced by earthy deposit, then the hair papillæ must become starved. Embolism of the brachial artery will cause shedding of the nails.* Plugging of any of the vessels may produce baldness; and loss of nerve-supply is another prolific source of this disease. Dr. Purdon narrates that during the war in the United States it was remarked that an injury to a nerve trunk by a gunshot wound or otherwise was followed by the

* See *Lancet*, November 7, 1868.

disappearance of hair over the parts to which the nerve was sent. Von Barensprung believed that failure of nerve power was the chief cause of baldness.

An officer in the Indian army consulted me some years since. He was thirty-six years of age, married, and had six healthy children. He had never had syphilis, but had been invalided on account of sunstroke, which, for a week or two, took away his reason. On his arrival in England he possessed a magnificent beard, moustache, and whiskers. Some few months after his landing he caught a simple influenza cold, and from that moment his hair began to leave him by handfuls, until, in the course of a few weeks, not a dozen hairs were left upon his body. The fine beard had all disappeared, every eyelash had passed away, and the tall gaunt man looked like a leafless tree. The skin of the whole body became transparent, as if no cuticle had been formed. I was fortunate enough to extract two hairs—all he had left upon him—and these under the microscope showed that parasitic disease was not present. A case is recorded in the *Lancet*, July 10, 1869, by Mr. Todd, in which an accident to the head was followed by complete baldness. A gentleman, aged forty-five, was thrown from an Irish car, and received concussion of the brain. Twelve months afterwards he became hairless. Persons who have been struck by lightning lose their hair. M. Boudin relates that the frigate *Golynim* was struck by lightning, and the captain received several wounds on the head. The next day, when that officer shaved himself, he found that his beard, instead of being cut, was torn out by the razor; after which every hair disappeared,

and never returned. The loss of hair in animals that have been killed by the electric fluid is universally known. Sir B. Brodie related a fact concerning two bullocks, pied white and red, who were struck in different storms. In both cases the white hairs were consumed and the red escaped.*

We see here varieties of shock to the nervous system producing the same result—viz., arresting the formation of hair.

Local alopecia must be only glanced at now, further particulars will be mentioned under parasitic diseases. An abscess may destroy the hair locally. The sting of a bee, the cut of a knife, or the blow of a bludgeon, may produce a similar result. Pityriasis, eczema, morphœa will do the same, as also lupus erythematosus.

As general baldness is more common in mankind, so do we find local alopecia more frequent amongst women, and often following the course of a nerve. This is a tedious disease. It is the Ophiasis of Celsus, and is often confounded with parasitic disease of the scalp, the one distinction being that, in circumscribed baldness dependent upon parasitic disease, the fungus can be seen under the microscope, and the hair follicles can be witnessed, but in the alopecia of nerve failure the skin thins, the hair follicles disappear, the sensibility is considerably diminished, and no spores can be perceived under the microscope.

Treatment.—Externally, strong tincture of iodine, thrice a week ; internally, nux vomica, iron, zinc, and the vegetable bitters.

* Holmes's "Surgery," vol. i. p. 750.

In general alopecia, even when hereditary, much can be done by the physician.

In the first place, the health must be established. This only can be done by the withdrawal of all stimulants, good wholesome food with vegetables taking their place. It is a fact, that the power of repair, especially in hairy failures, is encouraged by total suspension of wine and beer. Fat is essential as a diet, whether it be taken in the form of good fresh butter, cream, or cheese; whether it be introduced with bacon for breakfast, and excess of milk in coffee, or whether it be given by the means of cod-liver oil. Adipose material is the great nerve restorer, and likewise supplies the very material that the scalp lacks. Some authorities believe that the reason why men are more commonly bald than women is, because the subcutaneous fat in the latter preponderates. This they prove by the fact that eunuchs are generally *en bon point*, and they have remarkably long and permanent hair, and never have alopecia.

My prescription is this,—absence of stimuli, use of fatty substances internally, and stimulation upon the scalp. The Yankee remedy I approve of only in part: "Use brandy externally until the hair grows, and take it internally to clinch the roots."

Outside remedies have been used for centuries. Ladanum Galen extols; leeches were recommended by Avicenna; the ashes of the rose fungus mixed with honey by Pliny, and turpentine by Celsus; and tens of thousands of nostrums by quacks and clever women, from the blood of a lizard up to the shadow of a saint,

have been extolled as means of making the bald beautiful for ever.

The cantharides or Spanish fly is the most useful for this condition of hair, namely, general alopecia of youth. The tincture of cantharides should be applied with a sponge daily to the sterile surface on going to bed, and a diurnal wash be given with soap and cold water every morning; the head should then be dried with a rough towel, until the skin glows and blushes like a bashful maiden. Three months of such treatment ought to restore the lost hair. The expressed oil of mace and benzoated lard, in equal parts, vigorously applied daily, will produce a like result. I once prescribed it for an elderly person, some years ago, more to satisfy my patient's mind than in hopes of doing any good; judge my surprise, when a year afterwards, the remedy was extolled to the skies, for it had brought back, that which I had never anticipated, a renewal of hair upon the pate.

When the hair begins to grow after it has fallen, it is at first light in colour, dry in texture, soft as eider down, and plentiful as the filaments of a new-born babe. By degrees it grows stronger, and the natural pigment deposits. This is favoured by shaving, hence it is a good plan to mow the cranial lawns once a fortnight, until stubble takes the place of down. Then hair may be allowed to grow, and increase in latitude and longitude. Occasionally the dark natural colour will not be produced, and the baby hair remains till the end of life. What then is to be done? Feed the surface by means of a combination of oily material and stimulus. Dissolve one ounce of muriate of ammonia

in six ounces of spirit of rosemary, and then add one or two ounces of the oil of sweet almonds, with a quarter of an ounce of the essence of ambergris. This will make a delightful and strengthening wash. Three or four times a week should this be applied to the roots of the hair, and *gently* rubbed in.

Sometimes it is necessary to give a combination of chloride of arsenic with iron. This is highly efficacious in repairing lost tissue. Ten drops of the tincture of sesquichloride of iron, and three minims of the solution of chloride of arsenic, taken in water twice a day, immediately after meals, effects wonders in the removal of this disease. The most potent remedy we possess is electricity. In spite of the magnetic brushes which yielded no magnetism, and the galvanic combs which only electrified the pocket, we must claim for this agent its right place and power. It is the greatest stimulant that we have. It can awake a slumbering nerve, and call into vital activity a faltering muscle. It touches a pallid skin and makes it blush with renewed vigour. When an electric current passes into the body, the blood is immediately accelerated in its flow. It may be tardily running through its channels upon the surface of the scalp, leading to defective nutrition in the skin, hair bulbs, and nerves, and at once, when the electric pole touches the surface, the whole tissues appear changed. In the baldness depending upon failure of nerve power it is the only remedy upon which I can depend. It restores the tone of a failing nerve, and makes the capillaries turgid with vascularity.

Case 1.—A gentleman consulted me some years ago

for alopecia. He was thirty-three years of age, and had enjoyed very good health through life. The skin of his head was pallid and somewhat waxy in appearance. It looked as if it had been strained over the bony casement. Electricity was used several times, and he soon regained his hair. The effect of the electric current when first applied was to make the scalp intensely red. The blush produced did not readily subside.

The best way to get electricity for medical use is to employ a Smee's battery, that is one plate of platinized silver and two plates of zinc, immersed in dilute sulphuric acid and water. A common galvanic coil is connected with the poles, and from this the positive and negative currents are used. Apply then moistened sponges, which are fixed at each extremity of the poles, to the origin and extremity of the nerves supplying the scalp. For instance, place one of the poles at the back of the neck, the other upon the vertex of the head. Then pass the current through the occipital nerve. Afterwards remove the one from the back of the neck, and place it over the eyebrow upon each side, still retaining the one upon the summit of the skull; by so doing you awaken the supra-orbital nerves. After this, place one of the sponges under each ear, still keeping the other upon the top of the head. By so doing you excite into healthy action both the motor and sensory nerves supplying the head. If this plan of treatment be persevered in twice a week for a month, and after that period the head be rubbed with some stimulating unguent or lotion, hair will soon make its appearance. I sometimes use Herring's

magnetic brushes. I take the magnet out of the back of the brush, and get a piece of copper wire soldered into the two metallic plates at the back of the brush, and connect it with the medical coil. Then gently rub the brush all over the scalp, keeping the other pole at the back of the neck. The sensation is rather painful if the battery be strong. This must be kept in view, and commence with a very slight current. Pain should not be produced. All the good can be obtained without inflicting suffering.

Supposing that all the remedies before mentioned have been tried, and they fail to reproduce that which is lost, the wig comes in to cover up the infirmity, and to hide the scar. The perruquier must then take the place of the physician. Wigs are very nice things, and in the present day are beautifully made, and afford great comfort to the hairless. One gentleman consulted me who had lost his hair after an attack of fever. Cold air upon his nude scalp caused him acute pain. The shutting of a door behind him, so as to cause a current of air to pass over his head, was to him intolerable. A wig cured the discomfort, and he now no longer suffers from his loss of hair.

CHAPTER V.

TRICHONOSIS CANA, OR CANITIES.

BLANCHING OF HAIR.

WHITENED hair may occur from birth, from disease, or from age. It may be local, or it may be general.

Congenital Canities is frequently partial. A round white patch is seen in the midst of a dark forest of hair. Bartholin saw a babe whose hair on one side of the head was white, on the other jet black. A lady consulted me once for a piebald condition of hair, which she had dyed for many years.

Accidental Canities.—The hair prematurely grey, hoary, or white. From earliest days till the present time bards have sung—

> Age's snow
> On youth's fair front will sometimes grow,
> But he that does the deeds of manhood's prime,
> May without blame look old before his time.
>
> *Pindar*, Olympian Ode IV.

Erginus landed with Jason's expedition upon the island of Lemnos in the Ægean Sea. Hypsipylé, the queen, was celebrating funeral games to the memory of her father Thoas. Erginus was young but grey, and when he offered himself as a candidate in the armed

foot-race, the Lemnian ladies laughed at the presumption of the old-looking man; but, although the winged sons of Boreas were his competitors, he outran them all. So in our own day we see men of twenty or thirty with hair as white as the driven snow,—ladies weeping over their first grey filaments before they are married, and maidens trembling before a mirror lest a stray silver thread should have found a place in their youthful *parterre*.

What is greyness? It is analogous to caries of teeth; it is a nutritive change, and a pigmentary degeneration resulting from neurose derangement, which leads to a degradation of nutrition, and is an unmistakeable index of diminished physiological force. It is caused by one of many conditions, and usually occurs in the dark-haired.

1st. Age degeneration like that of the eye.

2nd. In youth, the result of neuralgia.

3rd. In youth, the result of diseases of the stomach.

4th. Accident, by which the bulb becomes injured.

5th. Sudden fear.

1st. Age. Counting the number of years that an individual has passed in this world is not the way to get at this important fact. Some men are old at forty; others may have lived their threescore years and ten, and yet not be aged. The changed voice, the weakened heart, the ossified arteries, the arcus senilis, the bald head, or the grey hair, speaks in stronger language than the baptismal certificate or the book of the registrar. Agedness is a condition, not of time, but of care and disease. I have seen men at forty

completely worn out, like a threadbare garment, and one only wondered at the time they had lasted.

Flowers, however bright, fade by time; so does the human being. But intemperance and sorrow, the two great depressants of life, leave their indelible impress upon the brow. They blanch the hair as well as the cheek, and put on the dial of life many years.

There is the natural fading—the autumnal leaf—the prelude to nakedness of winter. Man is not like a grey horse, so coloured from infancy by nature, but he only assumes the change as age advances, from black to grey, and then to white.

TURNING GREY.

Life's sands are running fast away,
The buoyant steps of youth are gone;
The falling hair is turning grey,
And time seems now to hurry on—
More fleetly than in days of yore,
Before the heart became its prey;
Before 'twas saddened to the core,
Before the hair was turning grey.

Yes, turning grey! Age comes like snow;
As still, and carves each careworn line;
Its wrinkles on the brow will grow,
The hair with silvery streaks will shine;
The eyes their brightness lose, the hand
Grow dry and tremulous and thin;
For life, alas! is quickly spanned,
And death its gates soon closes in!

Ah, turning grey! We fain would hide
This sign how long with time we've been;
These deepening wrinkles side by side,
Cut by the sorrows we have seen.

For feebler beats the heart as years
More thickly cluster on our head;
As autumn raindrops hang like tears,
On some fair flower that's nearly dead!

Like perished petals from the flower,
Our hopes and wildest joys are laid;
Born only for a day or hour,
Sweet gambols by the fancy played.
As age comes on we long for rest
As saints near shrines will long to pray;
But, ah! we loved that time the best,
Before the hair was turning grey!

Gentleman's Magazine.

The whiteness of the aged begins upon the temples, and then spreads through the whole hair. The papilla being exhausted fails to make colouring matter, but yet is able to form the outward casement. There is the skeleton, but the pigment is not forthcoming. Like a temple, there are the walls and the perfect fabric standing, but the whole interior is filled simply with air.

2nd. In youth, the result of neuralgia of the fifth nerve. This is a most common cause of greyness.

More than a quarter of a century ago Valleix noticed the change which hair had undergone in several cases of neuralgia. M'Notta, in 1854, revived the forgotten fact, and affirmed that the secondary results of neuralgia often caused the hair to turn grey or fall off. It was left for Dr. Anstie in 1868 to corroborate both of these gentlemen's views by personal feeling and observation. He thus writes: "I began, at the age of fourteen, to suffer from attacks of unilateral facial neuralgia in the right side (chiefly

supra-orbital), which very soon assumed the type of severe migraine, such as it has already been described. A year or two later, the pains being at this time severe and frequent, there occurred a painful thickening and tumefaction of the periosteum round the brow, and also the formation of one or two dense white patches on the cornea, in the centre of which small phlyctenular ulcers appeared. About the same time, probably, there occurred a great thickening of the fibrous tissue, surrounding the upper end of the nasal duct, which caused a dense stricture of that canal. Some years later, when the attacks had become much less frequent, they recurred with great severity during the prostration brought on by choleraic diarrhœa. I then first noticed that the hair of the eyebrow was whitened opposite the supra-orbital notch, and that grey hairs were thickly strewn over the right side of the head for some time after the attack; and this phenomenon has occurred after every severe attack since that time. It only lasts in intensity for a few days, and the colour soon becomes partially restored to its original tint, but *without any falling off of the hair.*"*

My own experience agrees entirely with this view, namely, that greyness is constantly caused by neuralgia; baldness seldom. Mr. Paget, in his "Surgical Pathology," relates another case to confirm this view of the subject: "A lady who is subject to attacks of what are called nervous headaches, always finds next morning that some patches of her hair are white, as if powdered with starch. The change is effected in a

* Reynolds' "System of Medicine," vol. ii. p. 737.

night; and in a few days after the hairs gradually regain their dark brownish colour."

3rd. Greyness, the result of diseases of the stomach. This is also not an uncommon cause of canities. The neuroses, the chronic catarrh long continued, blanch the blackest hair. The public constantly call these conditions "liver complaints," but the foundation is in the stomach. Dyspepsia affects the general nutrition. The early decay of teeth, the furrowed nails upon the fingers, the white filaments permeating the comate covering, the pale look, and the exhausted frame, show that nutrition is not going on silently and well. A body in health recognizes neither a stomach nor a heart; the wheels of the great machinery move so noiselessly and well that no jar is felt. In that condition termed neuroses of the stomach, which shows itself by an unnatural excitability of that organ, the appetite fails, pain is felt at the pit of the stomach, vomiting comes on, and greyness ensues after it has continued unchecked for some time. This is the most common cause of greyness, next to neuralgia, in females. Coming on after the age of twenty years, it becomes a source of annoyance to them, and if not treated medically leaves premature whiteness of hair behind.

The male sex are more troubled with chronic catarrh of the stomach in the production of greyness. In this condition we see the hereditary tendency developing. If a patient tells me, that his father was grey before him, I generally find this morbid affection behind the change of colour. So that, in fact, it is not the greyness *per se* that he has inherited, but the stomach weakness, which has been the seed of the premature

agedness. The patient tells us that he is well till he takes food, when all his troubles begin ; his legs ache, his spirits fail ; there is a weight upon his chest and conscience, and all the world is sitting heavily upon his shoulders ; his mercies, like the wind in his stomach, are always shifting—a rich man yesterday, to-morrow in the workhouse. Then thirst comes, and this must be slaked by beer or wine. His troubles thus increase fourfold. This is all put down to the door of "that wretched liver"—poor ill-used organ—and a strong pill is used to drive out the bile. A repetition of this state, on and off, continues for years ; the man gets careless about food and drink, and suffers for it. Then the hair begins to look dry and harsh, grey filaments peep out here and there, and life becomes somewhat saddened. The silver thread is everything but silver, and a man loses the elasticity of a healthy life. This morbid sensibility is one of the causes of intemperance. A man always feels thirsty in this complaint, and almost always gives way to his liking. A patient I saw a few weeks ago, aged thirty-five, whose hair was nearly white, told me it was impossible for him to leave off his *stimuli*. The depression was so great that he was compelled to take a pint of brandy a day.

4th. Accident, by which the bulb becomes injured. An injury to the head, by which the skin is bruised or cut, is very prone to leave behind either a bald patch or white hair. We see the same thing in horses ; if a black horse be wounded, as the injury repairs white or grey hair takes the place of the sable hue.

5th. Sudden fear or sorrow will blanch the hair in a

few hours. One case is recorded by M. Pouchet, in the "Avenir National," where, in half-an hour, a black head of hair lost all its colour: "On the 19th of February, Colonel Franks was engaged near the village of Chamba with a body of rebels, and many prisoners were taken. One of them, a Bengalee, aged about fifty-four, was conducted before the authorities to undergo interrogations. I had then," said Surgeon-Major Famy, "an opportunity of observing personally the following effects. The prisoner for the first time appeared to realize the danger of his situation, when he found himself stripped and surrounded with soldiers. He trembled violently, terror and despair being depicted on his countenance; and when replying to the questions addressed to him, he appeared absolutely stupefied by fear. Then, under our eyes, and in the space of some half-an-hour, his hair, which we had seen to be of a brilliant black, became grey on every part of his head."

A large number of cases are recorded of the same fact. The auburn tresses of Marie Antoinette etiolated in a single night, and the red hair of Mary Queen of Scots in a few days.

A great nervous shock will do the same thing. A case is recorded by Mr. Ellis, in the *Lancet*, of Nov. 2nd, 1861, of a young man, thirty years of age, who had dark brown hair. He was engaged in Norway upon the railway. An accident occurred upon the line, and he was thrown out, but sustained no injury, save the fright. The next morning he looked haggard; his hair, particularly that portion growing upon the

temporal bone, had changed from brown to grey. Well enough did Shakespeare write—

> Worcester is stolen away to-night,
> Thy father's beard is turned white with the news.
>
> *Henry IV.*

The human being knows to his cost that he has nerves. However robust his frame, however bright the colour upon his cheek, however mighty his muscular animal power may be, directly the missionaries of sorrow, suffering, or sudden fear come upon him, the strong man becomes a babe, the lion a lamb. Nerves are real things. Like the electric wires underground, they carry on their marvellous workings unseen and noiseless. If a nerve filament be crushed or injured, a severe pain tells the tale; but if it be cut through, the great sensitive nerve, the fifth, proclaims the fact. Now this marvellous trigeminus nerve supplies the head and face, therefore the hair and beard. Every central shock which takes place in the body is reflected upon it. It is in fact the electrometer of the human body—the vicarious sufferer for the injured part. Whether it be sorrow or fright, poverty or marsh miasma, this nerve tells the tale by causing neuralgia. If the stomach be deranged, how commonly do we find face-ache the result; if cold chill the frame, it assumes the name of tic-douloureux. Neuralgia follows debility as the wolves do lame sheep. The sympathetic system has much to do with the nutrition of the body. Mr. Paget calls attention to this in his "Surgical Pathology," quoted by Dr. Carpenter :*—

* "Human Physiology," p. 783.

"That such effects are rather to be attributed to the loss or perversion of the influence of the sympathetic system, than to that of the cerebro-spinal, would appear from the fact noticed by Magendie and Longet, that destructive inflammation of the eye ensues more quickly after division of the fifth pair *in front* of the Gasserian ganglion, than when the division is made through the roots of the nerve, between that ganglion and the brain; the sympathetic filaments, which exist largely in this nerve, being interrupted in their courses to the tissues in the former case, but not in the latter. So Dr. Axmann found that when the spinal nerves of frogs were divided *in front* of their prevertebral ganglia, the nutrition of the parts supplied by them was much more injuriously affected than it was when the section was made between these ganglia and the spinal cord. And this inference is further supported by the general result of observation, that atrophy of parts supplied by the spinal nerves is much greater when the sensory (gangliated) as well as the motor roots are involved, than when the latter alone are paralysed."

We see why terror spreads such havoc upon the hair as a part of the body supplied by this most sensitive nerve. Dr. Anstie, in his "Lettsomian Lectures," quotes three instances which show undoubtedly how the great sensory nerve participates in the injury of nerves in distant parts of the body. One in which the cervico-occipital nerve at the back of the head was divided, and two in which the ulnar nerve of the arm was cut through. In all three cases the trigeminus bore the acute pain. So that we find

in all shocks, whether mental or moral, this fifth nerve is the one to suffer. It is the largest cranial nerve, and resembles a spinal nerve, having two roots and a ganglian upon its posterior root. It is a nerve of sensation and of motion, and is the most important sensory nerve of the body. Let ague poison enter the system, this nerve begins to announce the fact by extreme pain upon this trifacial tell-tale. Let a man have concussion upon a railway without apparent bodily injury, and he either suffers from neuralgia, or, as we have seen in the case of the young man in Norway, bleaching of the hair. Agony, suspense, misfortune, and sorrow are doing similar work every day. We can scarcely accost a friend who has not, either at one time or another, suffered from neuralgia. But those who have healthy nerves do not suffer long, so that only a grey hair here and there testifies that the pain has been but of short duration; but let a man have an hereditary weak fifth nerve, and the cause of sudden whitening of the hair is soon known. We find that the children of lunatic parents have such weak nerves. The most intractable cases of neuralgia that come under the notice of the physician, are those where the neuroses exist in the relations. A common cold, which would scarcely affect a healthy child, will drive a drunkard's child nearly to distraction. An epileptic mother, or a lunatic father, will leave in the world an offspring more prone to suffering than others.

The cause of this sudden blanching of hair has filled the philo-comate writers with wonder. The fact they could not dispute; the source they did not know. Erasmus Wilson, our greatest authority, thinks

that it may be the result of electric action or the consequence of a chemical alteration wrought in the blood itself; or that it may be a conversion for which the tissue of the hair is chiefly responsible.

Vanquelin imagines that some peculiar acid is generated in the animal economy, which passing into the hair decolorizes it. Dr. Landois thinks the accumulation of air-globules in the fibrous substance of the hair is the cause. These appear to me to be very unsatisfactory reasons. I believe that this sudden blanching of the hair *is caused by an injury to the trifacial nerve by sudden central shock, that nerve being previously weakened by hereditary tendency to disease, either inherited from drunken, lunatic, or epileptic parents.*

Magendie regarded the fifth nerve as largely sharing in the nutrition of the eye. He believed that cataract was caused by a disordered state of the circulation supplying this nerve, or an abnormal nutrition resulting from its not being in a healthy state. Now if pigmentary degeneration represents a neurose derangement (which it does), we can see plainly how slight a cause would change the colour of the hair. When a body is black we know that all the rays of light are absorbed; but when a substance takes up all the waves equally, but not totally, it is grey. If a body reflect all the rays, it is white. Now a sable or brown filament, which had once in health absorbed all the rays, in disease from a great nerve change, begins to reflect a few; each hair becoming a mirror reflects the rays which it once absorbed; hence the hair becomes grey

or white, according to the amount of damage done to the nerve.

Two cases are recorded of white and brown alternately existing in hair, like the quills of the porcupine. Professors Schultze and Baum observed the case of a lad sixteen years of age, who, though healthy, possessed this strange crinal condition. Every hair was ringed alternately white and brown. Erasmus Wilson read a paper before the Royal Society, in 1867, upon the same change. His patient was the son of a gentleman, well fed and well cared for. He was only seven years and a-half old. The white part of the hair was opaque, the brown transparent. Every hair had these alternate bands upon it. The fibrous portion was filled with air-globules, and the whole structure gave evidence of want of healthy nutrition.

Treatment. What can be done for greyness? Having found out the cause, the remedy is simple. The *congenital* canities can be much improved by keeping the child well nourished and the skin of the head in a state of activity. Cod-liver oil external and internal. Combine it with carbolic acid and the odour is reduced. A few drops of the former with two teaspoonfuls of the latter, rubbed into the scalp twice a week, will produce some effect.

Accidental canities can be rarely restored. The bulbs of the hair are generally destroyed. It is sometimes worth the while to try painting with the vinegar of cantharides, in the hope that a few may have escaped uninjured.

In the greyness produced by neuralgia epilation is the best method. Pull out every grey filament, and

keep the power of the body up while the new hair is growing. Quinine, arsenic, and iron, given internally, will help the cure, especially if there should be any pain remaining. A young lady consulted me once for this condition. She was but twenty-three years of age, and was about to be married. It took her several hours to remove every light-faced intruder, and when finished a large heap remained upon the dressing-room table. Her honeymoon was enjoyed, and the grey hairs did not return. The same plan should be followed for greyness the result of disease of the stomach. But the indigestion must be cured, or all treatment for the hair will be in vain.

Blanching from fright is incurable.

CHAPTER VI.

LEUCOPATHIA OR ALBINISM.

ALBINOES exist all over the world. They are called Pàndan by the Hindoos, Dongos by the Africans, Bedhas by the inhabitants of Ceylon, and Chracrelas in Java. The Dutch met many of them in the latter country, and nicknamed them Kakerlaken, or cockroaches, because they only walked about at night. The Portuguese first described them as they found them upon the coast of Africa, and called them Lank-Œthiopes, or white negroes. The name of Albinos—from the Latin, albus white—other settlers fixed. Originally this name signified the white descendants of a black parentage, who resided in the inter-tropical regions of America, Africa, Sumatra and Ceylon. We now denominate an albino, one in whom there is a total absence of pigment, both in the skin and the hair. They may belong to any clime, and claim kindred with any and every nation. For we find them all over the world, in the burning plains of Africa and in the frozen zones of Lapland, in the wigwam of the American, and in the gin palaces of London. The Hindoos put them out of the way when they came into the world because they thought that they were the offspring of sin

They might as well have killed the negroes because they were the children of Satan. Perhaps their devil was a white one.

Albinism may be 1st. General. 2nd. Partial. The first constitutes the albinoes we meet occasionally in the world with the white, downy, milky skin—the stunted dwarfed body, the stooping gait, the head bent low as if sorrow had done its worst, the winking eyes all red as if with weeping, and, like the owl, preferring night to day. If we examine such a condition, we find that there is a general achroma of the skin, of the hair, and of the choroid coat of the eyeball. The pigmentum nigrum is absent upon the iris and the retina, so that one can see the bright red blood circulating in the vessels, which gives this ferrety hue. The pupil is small and contracted because it cannot bear the light, and most of the albinoes are short-sighted. The intellect usually is dull, the face blank and expressionless. At night when the rays of light are subdued and fewer in number, then the albino can walk upright and smile as others smile. I saw the son of a medical man some time ago, who, though an albino, was quick and bright, cheerful and happy. He had lost a brother, also an albino, whose vision and intellect were defective. These children were the result of close relationship marrying.

Albinoes are the degenerate offspring of marriages of consanguinity, and can be found wherever people are mad enough to intermarry with relatives, and were it not for the beautiful provision of nature, of making them sterile, we should have many instead of few amongst us. Intermarriage is very common, but albinism

the exception. Like interbreeding in the lower animals, the sexes by-and-by become incapable of propagation. An albino parent rarely, if ever, has a like child. Dr. Devay quotes an instance in which we see how albinism is produced :—

"Two brothers married two sisters, their first cousins, none of the four, nor any relation, being an albino. The *seven* children produced from this double union were all albinoes."*

Dr Maudsley states that the "general and ultimate result of breeding in and in, is to produce sterility, children of low degree of viability, and of imperfect mental and physical development, deaf mutism and idiocy."†

Again : "Frequent intermarriages in families lead to a degeneration that manifests itself in deaf mutism, albinism and idiocy."

Delacouse affirms that albinoes of the equatorial region of the New World, are individuals in whom the scrofulous or lymphatic diathesis exists. And that they are perfectly incapable of propagation.

Not only intermarriage, but drink has a share in the production of this morbid phenomenon. The Greek philosopher Zeno was not far wrong when he declared that fools were the offspring of drunkards. Dr. Howe has proved this assertion by stating that 145 idiots out of 300 that came before his observation, were the children of the intemperate.

Coinde narrates the instance of a man besotted and almost cretinized by indulgence in brandy, having three

* "Du Danger des Marriages Consanguin," p. 103.

† "Reynolds's System of Medicine." Article, "Insanity."

children successively by two different mothers, all of whom were albinoes. In neither parents was there any trace of albinism.

Dr. Darwin proves that albinism is a sign of weakness as a rule, both in the animal and vegetable worlds, that albino negroes suffer more from the bites of insects than the blacks, that the white-horned cattle are tormented more by flies, &c., than those of any other colour, that white chickens die more readily of the gapes, that white terriers suffer more from the distemper than dogs of any other colour, that white cats with blue eyes are always deaf, that white onions and verbenas are more readily destroyed with parasitic fungi than their more fortunate coloured neighbours, and that white sheep are poisoned with food that black sheep eat with impunity. In the Tarentino, people keep the black sheep alone, because the *Hypericum crispum* grows there. This plant does not hurt the black cattle, but destroys the white ones. Buckwheat when in flower is highly injurious to white or white spotted pigs if they be exposed to the direct rays of the sun, but perfectly innocuous to black swine. In Eastern Prussia it has been found that mildewed vetches nearly killed the horses that had any white upon them, the white patches became inflamed and gangrenous, whilst the other colour remained intact. Several cases are recorded of cattle exposed to the sun, in which every part that was covered with white hair suffered from skin disease, while the coloured portion escaped. Dr. Darwin states that a gentleman turned fifteen horses into a field of tares mildewed. The chesnut and bays with white marks on their body were seriously injured,

the white parts swelled and became angry scabs. The bay horses without any light hairs did not suffer in the least.

General albinism is congenital, not hereditary, while *local* albinism is hereditary.

Dr. Hodgkin relates that a family had a lock of white hair of a different hue to the surrounding hirsute covering, and that for generations this same lock continually appeared. Darwin knew an Irish gentleman who on the right side of his head had a small white lock in the midst of his dark hair. He asserted that his grandmother had a similar snowy lock on the same side, and his mother had one on the opposite side.

Treatment. Little can be done for this condition. Under the microscope, the hair of an albino shows degeneration of structure. In one case that I examined, of a child, four years of age, a medulla was visible, the same that would be seen in the filament of an old man, and deposits of pigment were scattered through its centre, as if nature were attempting to gather some colouring matter together. The fibrous structure was also interspersed with granular material. The point was split, and its sides were like a bundle of faggots. A hair eight inches in length stretched to eleven inches and broke. The hairs are extremely fine in most cases.

CHAPTER VII.

HAIR IN THE WRONG PLACE.

THE human body is a great mystery, and the above-named subject has perplexed the scientific world for ages, from B.C. 668 down to the present time. Pliny and Valerius Maximus inform us that the Messenian warrior Aristomenes, who died at Jabysus, in Rhodes, 668 years before the Christian era, had a heart covered with hair. Plutarch states that the same thing was found upon the dead body of the warrior Leonidas. The manly heart that beat so nobly at Thermopylæ was found after death covered with a hairy cerement. This comate wonder belongs not only to the hero, but to the rhetorician. We learn from Cœlius Rhodiginus that Hermogenes of Tarsus, when dead, furnished another specimen of this strange abnormal condition. Amatus Lusitanus mentions a case where hair grew upon the tongue, but fails to tell us the sex of the individual. Slonatius found hair in the blood of a lady, and Cardan in that of a Spaniard. Tyson saw hair floating in the veins of a damsel, but does not state whether it was a "love-lock" or a "heart-breaker." Schultetus beheld in the abdomen of a woman who had died of dropsy, a curl floating in the

fluid. In the Imperial Pathological Museum at Vienna is exhibited a mass of hair taken from the abdomen of a child six years of age. In 1858, at Guy's Hospital, the post-mortem of a woman revealed three perfect teeth and a mass of hair of a brown colour in the ovary. The bursting of this cyst had caused her death.* The peculiarity of this case was that perfect skin and sebaceous glands to each hair were visible. There are a large number of cases upon record of hair being found in ovarian cysts. Generally the filaments are without bulbs, tapering at both ends, and of a light-brown colour. Several cases are recorded of hair being found in the bladder, and one case of a mass being passed from the bowel. But in these there is no doubt that a dermoid cyst had discharged its contents into one or other of the outlets. In the mastoid cells of the skull and in the tympanum of the ear, hair has been found. In the brain and in common abscesses this filamentous product has been seen.

In the testicle of man, hair and teeth have been found. This resembles closely an ovarian cyst in the female.

One case is recorded of hairs two inches in length growing from the female bladder. Bulbs were visible in about one-third.† Dr. Garrod relates a case in which a little girl only eleven years of age had a multilocular cyst of the ovary, which contained a mass of hair, fat, and fragments of bone. Dr. Tyler Smith exhibited a dermoid cyst with teeth and hair that had passed through the rectum. Mr. Carver, surgeon, of

* *Vide* "Guy's Hospital Reports," vol. vi. series 3.

† *Lancet*, November 30, 1860.

Enfield Highway, last January called my attention to a case that occurred in his practice. A large mass of hair was found in the stomach of a woman who had died. She was the mother of three children, and was pregnant with the fourth. Two days after delivery she expired, and a large chignon weighing half-a-pound was found in her stomach, which mass of hair is now in my possession. I found it contained not only hair, but string, thread, blanket, and Berlin wool. These materials she had eaten during life; they had accumulated in her stomach, until at last the channel had become blocked up, and the lamp of life went out. This specimen was exhibited at the Clinical Society of London on the 28th of April, and elicited a great amount of discussion. The President, Dr. Gull, drew attention to the probability of this devouring of hair being an all but extinct instinct, which shows itself in the lower animals. He spoke of a certain breed of cats who were apt to commit involuntary suicide by swallowing the hair of their coats in the process of cleaning themselves. Horses and cows often die from the same cause, and in most of the veterinary museums specimens of hair bezoars are to be seen.

CHAPTER VIII.

VEGETABLE-PARASITIC DISEASE, OR DERMATOPHYTIC.

THE most powerful things in the world are invisible, from the odour of a flower to the immeasurable velocity of electricity. We have minute, invisible atoms ever floating about in the air we breathe, in the food we eat, and in the water we drink, at one time producing scarlet fever, at another, small-pox, and at another, ringworm. These we now consider can be seen under a powerful microscope and recognised when they vegetate upon the body. They are spores, not unlike that of the fern, only very much smaller, being simple structures of cellulose upon the outside, and having an inner coat or utricle inside, which encloses a fluid where floating granules sport. These spores are evidently of vegetable origin. The reagents which dissolve fat and animal structures will not touch these atoms. Chloroform, ether, and spirits of wine have no effect upon them. They are pretty uniform in size, refract the light, and grow where they choose. Sometimes in the shell of the oyster they take up their abode, at another upon the skull of a child—at one time down in the deep sea with the coral reefs, at

another upon the back of a mouse in our households. We now have to examine them as existing upon the human head, destroying the hair and spoiling the bulbs from which it grows. Wherever these fungi locate themselves their function appears to be to destroy. Whether we consider them resting upon the lassie's hair, or deposited upon the human foot, their action is to spoil and kill the surrounding tissues. In the Madura foot of India the parasite falls upon the skin, at once sinks into the flesh, destroying all around, even the bones, until the foot is removed from the body by amputation. In the hair or in the nails these epiphytes absorb the moisture, loosen the comate filaments, and render them dry and brittle. If the soil be suitable for their growth, they speedily commence their work of spoliation. The glossy lock becomes arid and pale, its elasticity departs, and unable to live amongst such bad company, the filaments fall out and leave the head bald. Left alone, these spores soon show what they are—they become plants, cohere, and form threads, branch out like trees, and grow. In circular forms, like the fairy rings of toadstool, they increase until every hair has disappeared, and if they be left unchecked they will travel all over the body, until the poor unfortunate is left as hairless as the dome of St. Paul's.

These parasites will not grow upon a healthy soil any more than mildew will develop in well-made jam. It is the weak and sickly, the luscious and juicy, the scrofulous and rickety, the dirty and neglected, that invite these small beings to dwell with them. Professor Bouley states that itch is most disastrous

amongst sheep when the crops have failed. M. Delafond has shown that healthy cattle will not readily take animal parasites, although acari may be placed upon the skin. Amongst plants it is the drawn-up and weak plants that get the aphis most readily, and the epiphytes, like the furies of old, attack only the sick and half-starved caterpillars. We find by experience that bad drainage and dirt, too much moisture and too little food, too much confinement and too little out-door exercise are the prime movers in the growth of parasitic life. How often, after measles, chicken-pox, hooping-cough, and scarlet-fever, when the vital powers are lowered, do we find that dermatophytic diseases begin. Dr. Tilbury Fox has divided the fungi into ten varieties. We shall only consider those that have to do with the hair. These are—

1st. Tinea Decalvans, area or local alopecia.
2nd. Tinea Kerion.
3rd. Tinea Tonsurans.
4th. Tinea Favosa.
5th. Tinea Sycosis.

TINEA DECALVANS.—AREA, OR LOCAL ALOPECIA.

Tinea Decalvans, or the smooth ring-worm, is the pest of our hirsute profession, because, although the disease can be easily destroyed, its results are not so readily removed. It is produced by a very pretty fungus, the Microsporon Andouini—but one which, like beauty, is not always acceptable. When this parasite takes up

its abode upon the human head, it sets up an irritation that keeps the fingers employed. Soon the hair loses its gloss and hold upon the skin, and falls off dull and dead. We examine the spot, and find it well defined, slightly indurated and pale, the hair all gone from a certain rounded space, and the skin naked and polished. Sometimes the spot is small, not larger than a sixpence; at another time exceeding the size of a crown-piece. It is a disease of youth, and appears to favour girls. If we examine the surface with a lens, we see a crop of small dwindled hairs in the centre of the bald patch, more like down than hair, and a few short, thick, club-shaped hairs around the margin. These can be extracted easily, and are found to be dry, bulbless, and tapering at their roots into a point. If we place one of these under the microscope with a solution of potash, we behold a minute fungus dotted all up the hair filament, bulging the substance, sometimes bursting through the fibrous structure, and then cohering and winding around the filament, like ivy clinging to the oak. Sometimes it resembles a miniature vine, the spores clustering together look like bunches of grapes. If the disease be left to itself it either dies out, leaving hair full of pigmentary matter, surrounding bald places, or it destroys every hair upon the head, and then commences its ravages upon the whiskers.

I have one patient under my care now, a young man eighteen years of age, in which it has destroyed the whole of a beautiful black head of hair, with the exception of a small tuft over the right ear. On the left side it is attacking the whiskers, and if unchecked will destroy every hair upon his face.

I have another case of a gentleman, thirty-two years of age, who consulted me, with a large bald patch, the size of the palm of the hand, upon the back of his head. I applied the strong sulphuric acid, and stopped its wild career. Since then several nummulated patches have appeared upon different parts of the head, which have been treated in the same way. Hair is now growing over all these places. If this disease be allowed to go unchecked for a long period, the skin becomes atrophied, the subcutaneous fat absorbed, the hair bulbs destroyed, and permanent baldness ensues.

Some years ago I saw a young lady, who for nine years had been bald from this disease. She had blistered and lotioned her poor skull until exhausted in pocket and patience, she had given up the affair as hopeless. In these severe and long-standing cases it is necessary to apply the acid several times, at intervals of a month.

The nummulated variety is the first stage of the serpigenous form; if the first condition be cured, the second is rarely produced. This disease is generally unilateral, producing a small bald place upon the back of the head, over one of the parietal bones, which gradually enlarges. Sometimes it is symmetrical, attacking both sides of the head; but the rule is that in the early stages it is one-sided. If one be consulted when the disease has existed unchecked for some time a good specimen is often seen of the serpigenous variety. One patient, over forty years of age, consulted me in this condition. He was a builder, and very careless about his appearance. Ten years before I saw him a small bald spot came upon the upper part of the head,

the size of a sixpence, which had continued to extend itself in an irregular, sinuous manner, curve upon curve, until it had devoured nearly every hair upon the head. He looked much like a Roman Catholic priest, the upper part being all polished as if shorn, and this sterile waste surrounded by a fringe of intensely black hairs. It reminded one of the ravages of some inland sea—a series of bays and promontories of thick-set hair projecting and receding into the bald space.

The approach of recovery evidences itself by the presence of a new-born crop of cottony fibres of which an infant would be ashamed, but which proclaim the advent of something better. If these be allowed to grow for a few weeks, and then the mower's scythe freely applied every two or three weeks, the heart of the patient will revive as he beholds the natural colour returning.

I have noticed a strange fact in connection with this disease, viz., that adults do not give it to others; that it is not contagious in grown-up people. I know a gentleman now who has had tinea decalvans for years, but neither his wife nor his children have caught the affection. Amongst children it rarely makes its appearance—if it does, it becomes contagious.

Several remedies have been recommended for the cure of this troublesome complaint. Dr. Tilbury Fox advises blistering with a strong solution of bichloride of mercury. But this is a dangerous remedy. A child died at Chippenham last August, from having this poison applied to the scalp. I have used this preparation several times, but am quite dissatisfied with its action. It gives very great pain, creates too

much inflammation, which often leads on to pustulation, and does no more than sulphuric or carbolic acid in destroying the parasite. Küchenmeister is contented with the external application of alcohol, which, if not destructive to the epiphyte, retards the development of its sporules. Professor Von Erlach, of Bern, applies turpentine frequently to all parasitic growths, and cures most of his cases in two months, with this simple remedy. Tincture of iodine is most efficacious, if its strength be increased, and its application continued for some three months. This is decidedly a good remedy for chronic parasitic disease. Liq. potassæ has proved in my hands useful, especially when followed by a strong stimulant, such as tincture of capsicum or cantharides. But the remedy of remedies is the careful application of the strong sulphuric acid. My plan is to get the head well washed with soap and water the day previous to my application, and if the tinea be small and many, dotting all over the head, I have the scalp shaved. If much pomatum or oil has been used it is necessary to apply solution of potash liberally, and this must be washed away with soap and warm water, so as to cleanse the surface from any oleaginous material. The patient should be placed in a chair, and a waterproof cape fastened around the neck, to protect his clothes from the ravages of any acid that may be accidentally dropped. A glass rod should then be dipped in strong oil of vitriol, and passed freely all over the damaged surface; this followed by a sponge saturated with strong carbonate of soda and water. This latter alkali prevents any destructive effect upon the skin.

At once the parasite is destroyed, and no pain whatever is given to the patient. If the acid be allowed to remain too long then tingling or burning will be felt. A little practice will soon make the operator dexterous, and this method will prove successful, in the cure of these pests to the hair.

TINEA KERION.

Tinea Kerion is also a parasitic disease, depending upon the presence of the tricophyton tonsurans. Eighteen hundred years ago Celsus wrote of this condition, and advised remedies to remove the disorder. It was called kerion by the Greeks, from its resemblance to a honeycomb, and the description given by Celsus is the counterpart of what we see at the present time. I append it as written by him :—

"There are two species. One is whitish, and like a furuncle in shape, but larger and more painful. When it maturates it has openings, through which is discharged a glutinous and purulent matter ; nevertheless it does not come to due ripeness. If it be divided by incision there appears to be a great deal more corruption within than in a furuncle, and it reaches deeper. It seldom occurs but amongst the hair of the head.

"The other is less, and eminent upon the top of the head ; hard, broad, of a pale colour, and more ulcerated ; for there are openings at the roots of each of the hairs, through which issues a glutinous, palish humour, in consistence like honey, or viscum, or some-

times oil; and if an incision be made upon it the flesh within appears green. There is great pain and inflammation, inasmuch that they often bring on an acute fever."—A. Cornelius Celsus, book v. chap. 28.

His remedies are strange. Dry figs and boiled linseed, turpentine, resin, and stavesacre. If these fail the knife must be employed, and the whole removed.

This disease often commences suddenly. The hair breaks off, the hair follicles, and glands of the skin swell up, and represent a miniature mole-hill, only uneven and boggy. The prominence is perforated with foramina, and a sticky tenacious fluid exudes, not unlike the juice of the mistletoe. Sometimes the glands of the neck enlarge and suppurate; and the patient becomes ill and depressed.

If a hair be removed, and examined under the microscope, it will be found full of the fungus. The hair comes out easily, and the sheath with it. The discharge from the swelling is not pus, but albuminous lymph.

The *treatment* of this disease is simple. Depilate every hair, then apply the carbolic acid and glycerine of the British Pharmacopœia or weak bichloride of mercury lotion (½ gr. to 1 oz.) Keep up the strength of the patient by tonics, and an occasional alterative, consisting of a compound rhubarb pill for an adult, or a few grains of rhubarb for a child. After the wound is healed baldness frequently exists. If the disease be associated with the strumous diathesis, or follows measles, the alopecia is sometimes permanent. The best remedy to use is, painting the part with

tincture of iodine, three times a week, until hirsute growth begins to appear.

Kerion is an affection of childhood, and is rarely seen in manhood. As a rule, it takes some months to cure it. In Professor E. Wilson's practice he found that the duration of treatment was from two months to two years. Eight of the cases recorded by him had been in existence under three months, and two over one year.

TINEA TONSURANS, OR COMMON RINGWORM.

This is the ringworm of children, that in every village has a "certain cure" in store. But alas! village blacksmith and spectacled dame must sometimes be disappointed. It is a scourge in public schools, and so contagious that few juveniles escape. It begins with itching of the skin of the head; of course scratching follows, and redness remains behind. A small circular patch appears, which becomes slightly swollen. The hair loses its polish, becomes dull and brittle—sometimes discoloured, and then dies. The filaments break off near to the surface, and the space looks like a man's beard, that has not been shaved for a week. Stumps of withered hair are seen standing erect or bent. If touched with the finger it will be found that all their natural elasticity is gone; for they remain permanently bent. The skin is changed. A gooselike prominence of cuticle is there, every follicle standing out in bold protest against the morbid intruder. A red or slate-coloured hue pervades the

diseased patch, and a fine down, not unlike the bloom of a peach, is seen upon the skin's surface. The margins are well defined. Sometimes a crop of vesicles or pustules, like weeds, spring up, to cover the sterile portion. Patches, of varied size and shape, make their appearance in several parts of the hairy plantation, and leave wide addle gaps in what was once "well-set hair." If we attempt to pull out a hair for microscopic examination we find it differs widely from the other affections of the head—the hair being so brittle that it requires some dexterity to extract the root. The stump removed, and placed under the microscope, with a little solution of potash, reveals to us the presence of the tricophyton tonsurans. We observe that the fibrous structure is altered, bulged, of a dark colour, and its filaments pushed aside by the presence of spores. The substance looks like a bundle of sticks with a number of small berries sticking in clusters, like mistletoe to the wood, and filling up the interspaces. The spores are round and well defined, whilst those of the achorion Schönleinii in favus, are oval. If mycelial threads be present they run parallel to the fibres of the hair; the spores are very plentiful in the root of the hair and in the epithelium around it. This disease is highly contagious, and often spreads from the lower animals to man. I have known children catch it from a cat or a mangy dog. Horses may be the vehicle by which the spores are spread. I have known five or six in one house affected with it. A little boy was under my care some time ago with this disease. He was five years of age; he had a sister at home with the

same affection. They had a cat in the house, who had several bare patches upon its back, so that they had it destroyed, some few weeks before I was consulted. On the left side of the boy's head was a large oval patch, the size of the palm of the hand. This was covered with micaceous scales. The hairs were broken, dry, and withered. The stumps under the microscope were found filled with spores, several of which were split at the ends. One of the children in the house had tinea circinata upon the shoulder. Another case was under my care, where two young ladies caught this disease from a pet dog. I was able, fortunately, to extract from the animal some of the diseased hairs, and put them side by side with those of my patients, under the microscope. There was the epiphyte luxuriating in the hairs of mistress and dog. These spores are scattered more about the head than that of any other parasitic disease. They are also looser, and easily removed from the hair, and sent floating about in the atmosphere. A glass slide moistened with glycerine will cause them to adhere, so that they are easily found. M. Bazin passed currents of air over the head of a patient with favus, and thence over the mouth of a jar containing ice; the sporules were detected at once, and brought under the microscope.

Treatment.—The popular remedies for this affection are aromatic vinegar or common writing ink; the medical nostrum citrine ointment or white precipitate. Some authors recommend depilation, but this is so difficult to perform, the hair being so brittle that it breaks off and leaves the root behind. It is

impossible to aberuncate the damaged hairs. For years I have used the strong sulphuric acid, and have never known it fail. A little boy was brought to me who had been under the best care in the metropolis for ten months, and as fast as one spot was cured another made its appearance. I ordered the head to be shaved, and applied the oil of vitriol all over the scalp; in a few weeks his friends wrote to me, saying that he was quite cured. When recovery takes place, light downy hairs appear upon the surface which was once studded with sterile stumps, and in a few months hair of the natural colour returns. It is well to examine with a lens the morbid surface a month or six weeks after the operation, and if any suspicious hairs be visible to reapply the acid.

If the hair be slow in growth, stimulate the scalp with tincture of cantharides, in which a few grains of corrosive sublimate have been dissolved. Sometimes I have found the precipitate ointment of the British Pharmacopœia serviceable, especially in removing small spots.

Internally, tonics are required, especially cod-liver oil.

Diet.—Animal food, milk, fresh butter, and plenty of air.

To prevent others catching it, it is as well to keep the surrounding hair well oiled, as the spores are not so liable to fly about. A good compound is made of one ounce of hypo-sulphite of soda, dissolved in four ounces of water, two drachms of solution of potash (Liq. Potass), and two ounces of sweet oil, well shaken together and perfumed. Ten drops of otto of rose and twenty of the

oil of sandal wood being added, a fragrant lotion is made.

TINEA FAVOSA; OR HONEY-COMB RINGWORM.

This disease is happily rare in this country, but more common in Scotland. It chiefly affects the children of the lower classes. A small isolated yellow crust, the size of a mustard-seed, is seen surrounding a hair. It then extends in circumference and thickness till it attains the size of a split pea or lupin seed. It then becomes depressed in the centre, and presents a minute cup resting upon an inflamed base, the skin. Another forms and then they multiply and coalesce. The work of destruction goes on till the patient becomes bald. The affection begins by the implantation of a spore of a parasitic fungus, called Achorion Schönleinii, this speedily developes into a favus. The epiphyte dives into the hair-follicle, interferes with the formative papilla, the hair loosens, becomes brittle and opaque, thickens and dies.

This fungus bears a great resemblance to the genus Torula, of which the yeast and the vinegar plants are samples. Remak was unable to make any of the spores germinate upon the human skin, but some produced prolongations when placed upon an apple—the surface of the fruit turned brown within a week, and then grew another parasite, mildew. He kept some spores afterwards upon the arm for several days and no result appeared till a fortnight after, when a favus appeared. Gruby has inoculated various parts of the body with

this favus material, and even caused it to grow upon wood. That is more than can be done in England!

This parasite consists of an amorphous granular mass, the stroma; narrow, sinuous, ramified tubules, containing molecular granules — the mycelium; also broader tubules, with minute cells sometimes elongated placed end to end, so that it has a jointed aspect. Its spores are oval, some free and some joined end to end.

This is a disease fostered by dirt, and fed upon damp and famine. As the being fails the fungus thrives, as the body strengthens the disease dies. Such is the law with epiphytes. This abnormal condition is quite curable if taken in time, but if allowed to go on unchecked often induces incurable baldness by causing atrophy of the hair-follicles.

Treatment.—First cut off the hair as close to the head as possible, then remove the crusts by applying a warm poultice for a few hours, after which place glycerine all over the scalp, and with a quill pen remove all the softened material. When the head is quite clean, wash the morbid surface with a weak solution of acetic acid and water, or sulphurous acid lotion. Then begin to depilate. Every hair should be removed. This, as a rule, is not a painful process. If it be the ether spray should be used to deaden the sensibility, and then with a broad-bladed forceps, begin to aberuncate every hirsute habitant. This is generally a curative process. If it does not remove the disease, parasiticides must be employed. Carbolic acid mixed with zinc ointment, or bichloride of mercury solution, two grains to the ounce of water. After this exclude the air as much as possible by a free use of oil or benzoated lard.

The after-baldness may be treated by diluted acetum cantharides, or the Ung. Cantharidis of the British Pharmacopœia, two drachms, nitric oxide of mercury, ten grains, benzoated lard, one ounce.

Internal remedies to strengthen the body should be given, such as cod-liver oil, glycerine, fatty food, iron, &c.

SYCOSIS.

We now come to a disease of manhood, an affection that attacks the beard and hairy parts of the face only, excepting occasionally when it extends up the whiskers to the temporal region of the skull. It never commences under the era of puberty, nor after the age of seventy.

In the prime or the decline of life is the time of its greatest power. It generally commences its work by forming a red irritable patch in the hair of chin, moustache, or whisker, a true tinea circinata. It there kindles a flame in the hair-follicles, like a grain of sand in the eye, and acts as an irritant, the blood-vessels get congested, and the surface of the skin becomes swollen. Pustules or tubercles now push themselves up from the inflamed surface, burst and discharge a muco-purulent fluid, which by exposure concretes into a thin, dirty-grey scab. On removing this we find underneath a moist glistening red surface like a ripe mulberry, moistened by the rain. These nodulations are distinctive of the disease.

The slight form of this morbid affection is called *Sycosis Erythematosa*, and exists chiefly upon the eye-

brows and temples. It begins by itching and heat, but no exudation takes place until the nails have been well applied. Then the skin becomes red, hard, and thickened, and often remains at a standstill for many months.

Treatment.—A weak solution of bichloride of mercury or the glycerine and carbolic acid of the British Pharmacopœia, soon cures this condition.

Sycosis Papulosa or Coniformis is the next form we notice. This consists of a slight inflammation or congestion of the follicles. It lives chiefly upon the upper lip and chin. Each follicle becomes conical, and gives exit to a hair. This is prone to go into the next condition if unchecked.

Sycosis Pustulosa. The hair is pushed out by a flow of purulent or semi-purulent fluid. Successive crops of these pustules appear often grouped together, and are very painful. The fluid emerges out of the apices, instead of burrowing at the bases of these cones. This goes on to the next phase.

Sycosis Tuberculosa, which is a more chronic condition, in fact a ripening of the forms already mentioned because unchecked by remedies. Oftentimes no earthly power can nip this in the bud.

Sycosis Fungosa or Ficosa, so named from its resemblance to the inner part of a garden fig, is fortunately not common in England.

It begins commonly under the chin, or upper lip, by a tingling of the skin. A burning sensation ensues, and the hairy foundation becomes reddened, scurfy, tender, and swollen. Pustules lift up their heads and prevent the razor from doing its work. Then tubercles appear upon

the inflamed surface, cohere, and begin to discharge. The patches become nodulated, circumscribed, full of fungous ulcers. The glands often inflame, suppurate and add to the sufferings of the patient. The hair of the affected part falls off, its roots get entangled in the crusts, the chin becomes extremely tender, and little red granulations stand up in various parts of the diseased patch, and give intense pain. All this mischief is occasioned by a parasite growing in the hair-follicle and in the substance of the hair of the face. I have seen this fungus growing in all its stages, as the small round spore, the same as the trichophyton, with its mycelial threads, branching outside the filament and clinging round the damaged shaft, as the medullary structure filled with its spores.

This disease is oftentimes very obstinate. It occurs in men debilitated by drink or sorrow, and happening at that time of life when the power of repair is feeble, it sometimes assumes a grave aspect. One case that I saw in a farmer, who was fifty-five years of age, threatened to extinguish life. The sympathetic irritation was so great that he was compelled to take a large quantity of stimulus and nutriment to keep the heart in action.

This disease may be mistaken for acne, but the thickened and condensed skin will at once diagnose this condition. The common error is not to distinguish sycosis from impetigo. Both diseases may occupy the same site, and put on similar garments; but the microscope will decide.

The pustules of impetigo are not so large as in sycosis, neither are they accompanied with such

thickening of groundwork. But the great difference is absence of fungous granulations. Sycosis is contagious, impetigo not. The former may produce baldness, the latter never. It is important to distinguish the two in treatment, for in sycosis depilation is necessary, and as a rule is not painful or difficult, but in impetigo the attempt to remove a hair causes agony, and does much harm to the patient.

The *treatment* consists of extracting every loose hair. Give the patient a pair of tweezers and let him amuse himself by removing every damaged hair by avulsion, and then let him apply locally zinc ointment and carbolic acid—one drachm of the acid to two ounces of the zinc ointment, or a weak solution of the bichloride of mercury, one grain to the ounce. Internal remedies are extremely serviceable. Quinine and iron, cod-liver oil and nutritious diet, will help the cure.

There is a condition dependant upon the entrance of this cryptogamic parasite into the substance of the hair without producing any local symptoms upon the skin or cellular tissues. Every case narrated has occurred in strong healthy men. This may account for its not producing the usual symptoms of sycosis.

The hairs of the beard are found to be bent, and brittle. Little white knots are seen upon the shaft, looking not unlike the nits of the pediculis capitis. If the hair be brushed or slightly pulled, the shaft breaks off at these protuberances.

Dr. Beigel has referred to this condition, and called it inflation and cracking of the hair, and believed it was caused by gaseous accumulation in the medullary

substance which burst through the filament, and destroyed the shaft in the way described.

Dr. Tilbury Fox has discovered the fungus elements "upon and between the frayed-out fibres and in minute form in the shaft itself."

The burst portion resembled two shaving brushes placed end to end.

CHAPTER IX.

MORBUS PAXTONII.

This disease of the hair was first discovered by Professor Hallier, of Jena, and described by him in his treatise—"Die Pflanzlichen Parasiten des Menschlichen. Körpers" (p. 95). Dr. Paxton, of Chichester, not knowing that Hallier had described this condition, wrote a full and vivid account of this parasitic affection, and he has gone more thoroughly into its intimate structure, describing its birth, its life, and its decay, so that I have named the disease after him—Morbus Paxtonii. Through the kindness of Dr. Paxton I have been enabled to examine this disease most thoroughly. It exists in the armpit, and in this hotbed grows most luxuriantly. The hair becomes reddened, and lighter than the healthy hair. Its filaments are swollen and knotted, and present a dull, dead appearance. The masses surrounding the hair are spores developed in groups of four, not unlike the sarcinæ found in the stomach. They are the $\frac{1}{14000}$ of an inch in diameter. They live deep down in the root of the hair, grow up with the filament, burst through the fibrous structure here and there, and finally dash out near the point, and leave the hair broken as if by

an internal explosion. Some parts of the comate filament are cracked through, yet held together by a morbid concretion which surrounds it. Ammonia, ether, and chloroform, are unable to dissolve this new material, and solutions of potash and soda that remove hair, leave this mass unaltered. It appears to be some product of the inner transparent root-sheath—some morbid material, the result of irritation, caused by the presence of a parasite. Dr. Paxton's account of this disease is so lucid and true that I prefer to copy from his paper published in the *Journal of Cutaneous Medicine*, vol. iii. p. 133 :

"The affected hairs are of a lighter colour than those which remain normal, and are also swelled and knotty, and have a dull, gelatinous appearance. This deformity usually commences a few lines above the bulb, and extends over the whole remaining length of the hair ; but in some cases a much smaller part is affected, or there may be only a few isolated knots. The swelling depends mainly on masses of foreign matter attached to the hair in more or less of its circumference, but not usually surrounding it anywhere. They are so closely adherent that a transverse section may be readily made without detaching them. In its more central parts such a section does not exhibit anything abnormal, but at the circumference the hair structure is seen to be frayed out, fibres passing into the masses of foreign matter which here cover it on both sides. In structure these masses are granular, with an obscure appearance of lines radiating outwards.

"In order to examine the surface of the hair and its

relation to the masses of foreign matter, some preparation is necessary to render them sufficiently transparent. The following plan seems to give the best results: The hair is first boiled in strong solution of ammonia; then, after it has been carefully dried, it is heated with ether and chloroform successively, in order to remove all oily particles. After it has again been dried it is laid on a slip of glass in a drop of strong glycerine and heated. In a portion of hair which is thus prepared, the imbricated scales which form the cortex in its normal condition are absent; the more superficial fibres of the shaft are ruptured, as if by a force from within, and imbedded in the extraneous matter. In some cases the disintegrating process extends much further; indeed most of the affected hairs are broken off near the point. The fracture in such cases is ragged and brushlike. In other instances the shaft is cracked through, and the fragments only held together by the new material, as by a ferrule. There is the same granular appearance on the surface and obscure radiated structure internally as we have seen in the transverse section, but there is nothing which can be identified as spores. In specimens which have not been treated with ether there are little roundish bodies which have very much that appearance; but as they disappear in the course of preparation, it is to be presumed that they are merely oil-globules. When one of these hairs is examined in a drop of water, after a short time minute particles are thrown off and exhibit rapid movements. When treated with solution of iodine, the foreign matter becomes rather more deeply coloured than the hair;

but when sulphuric acid is added, it does not give the reaction of cellulose. If an affected hair is heated in a drop of liquor sodæ so as to destroy it, the concretions remain, and may still be observed retaining their outline, and faintly exhibiting a granular structure after the hair has entirely disappeared. They are, however, more altered by solutions of caustic alkalies than the tubes of favus, which indeed seem to be almost indestructible by these means. I have not yet succeeded in making this parasite germinate. When laid on a glass slide in a drop of syrup and supplied with water, the small moving particles increased much in number, but underwent no further development. These hairs, when laid on slices of radish, and kept on moist sand under a bell-glass, were soon covered with tufts of a minute white mould,* the spores and mycelium of which were so numerous as to obscure any proper growth from the parasite. In one instance it appeared that there were some coarser yellowish threads produced at the same time, but they were not sufficiently distinct to justify any positive conclusion as to their origin. Notwithstanding my want of success in this respect, I think that no doubt can exist as to the parasitic origin of this disease. The injury done to the shaft of the hair is precisely such as would be produced

* The occurrence of this mould, which is very distinct from such of the many kinds as I am familiar with, is mainly interesting from the fact that it was also constantly produced when an undoubted fungus was placed in similar circumstances under another bell-glass. In the present case it certainly originated on the hair parasite, and only subsequently spread to the radish.

by a growth originating just below the surface, and bursting outwards by its increasing bulk. The resemblance in this respect to the growth of the epiphyllous fungi is too marked to be overlooked. Then the peculiar structure, granular on the surface, obscurely fibrous internally, much resembles that of the denser parts of some fungi. It is, however, very different from most of the fungi which have hitherto been described as infesting the hair and skin. It most resembles that described by Dr. Tilbury Fox in the *Journal of Cutaneous Medicine* for July, 1867; and indeed the resemblance is so considerable in some respects as to suggest that they may be different forms of the same species modified by difference of habitat. I have not had an opportunity of examining the parasite causing the so-called gregarines; but from Dr. Tilbury Fox's description they appear to differ in the following particulars: The Achorion Beigelii appears to consist of a sclerotioid mass, the cellular structure of which may be distinctly made out with a magnifying power of 200 diameters. It has its origin among the cortical scales of the hair, but no deeper; consequently the shaft of the hair remains healthy, and does not break off in any case. It also appears to be confined to single isolated points on the hair, forming little knots. The mass bears on its surface a considerable number of large spore-like bodies which can be made to germinate. The parasite affecting the hairs of the axilla probably also consists of sclerotioid masses, but their texture is finer, so that the cells cannot be distinctly made out with a power of 500 diameters. It is also developed in the deeper structures of the hair, and hence pro-

duces greater alterations in its structure. There is an absence of the large spore-like bodies ; at any rate they are very scarce, and the mass does not readily undergo further development. It is not impossible that these differences are caused by the difference of habitat, and they certainly are such as might be expected to exist between a plant occupying so exposed a station as the scalp, and a dweller in the tropical heat and moisture of the axilla. Whether this is or is not the case, and what are the botanical affinities of this parasite, it is vain to speculate until it can be made to germinate and bear fruit in a satisfactory manner.

"I have found an instance in which the hair was coated from the bulb upwards with a membranous coating, continuous below with the white cuticlar matter so often withdrawn in extracting a hair, and above becoming more and more granular in texture and passing into the concretions of foreign matter. This would appear to suggest that the condition I have described is merely an exaggeration of that in which portions of the lining of the hair-follicle are drawn up upon the hair.—Todd and Bowman, "Phys. Anat.," vol. i. p. 419, 2nd edition.

"This hypothesis, however, would not be compatible with the stability exhibited by these concretions when exposed to the action of caustic alkalies, nor would it account for the peculiar broken condition exhibited by the deeper structures of the hair, especially as such a coating would tend to protect the surface of the hair from the constant attrition, which, as Mr. Erasmus Wilson has observed, is frequently the cause of a peculiar roughness and absence of cuticle in

the hair of this region. It is not impossible, on the parasitic hypothesis, that the presence of growing mycelium in the interior of the hair-follicle may stimulate the cuticle to increased growth, and that the imperfectly formed mycelium may be further developed, and produce disruption of the fibres of the shaft of the hair beneath this covering."

CHAPTER X.

PLEUROCOCCUS BEIGELII, OR CHIGNON FUNGUS.

About five years ago the papers were full of a new discovery. A nondescript creation had been found upon a piece of hair refuse, and this had become a bugbear to the ladies. The fair sex shook their heads and talked secretly one to another of a certain undefined something between an unmentionable insect sometimes found upon children's heads, and a toadstool in the fields. The hard names of epizoa and entozoa crossed their lips, and each lady eyed her neighbour's coiffure with something akin to fear. At last the fact was stated—a certain creature had, like a wild beast from a menagerie, escaped from the intestine of a cockroach and taken up his abode in the chignon of a blonde beauty. His name was "Gregarine," and like a bogie, for months he kept the fair sex in fear. What with cholera in the air and gregarines in the chignon, the *beau monde* were kept in suspense for some long time.

All this commotion came from a very small incident. A certain gentleman, well up in the microscope, was walking through a large wholesale hair warehouse in the City of London, when amongst the refuse con-

demned to be burnt, he spied a piece of hair covered with knots. He asked to be allowed to take this dirty piece home with him, in order to examine it. Professor Lindeman, of Petersburg, had just published a paper, in which he asserted that he had found gregarines in human hair. From his description, this portion of German hair agreed with the account, and in a few weeks all the world was wise. Dr. Beigel and Dr. T. Fox took up the matter, and made known to the public the results of their examination. They were these: That these nodes of the hair *were not animal productions at all—not gregarines, but vegetable fungi.*

Dr. Beigel put these nodosities in a saccharine solution, and exposed them to a moderate temperature till they altered their shape and grew. Cell added to cell until the fungus branched out and became a miniature tree. Upon his own arm did Dr. Beigel propagate this epiphyte, and it flourished for a fortnight remarkably well. Dr. T. Fox germinated it in water, and Mr. Lankester grew it in soup.

These parasitic fungi have not yet been seen as a disease upon the human body, but you will observe a resemblance to the disease just described, Morbus Paxtonii. The following is Dr. T. Fox's views of this parasite:

"But now to the description. If we take a hair on which these parasitic fungi are found, we notice little dark knots the size of pin-points, surrounding the shaft, especially towards the point; they are difficult to detach, and surround the hair equally in all directions. They may be scraped off with a little

trouble. If a hair be placed under the microscope, with a quarter-inch objective, there will be observed fungus—for it is evidently a fungus—made up of two forms; one in the centre composed of cells undergoing a transformation to the changed or *mycelial* condition, and a second consisting of large round and oval spores —the *sporular* phase. The spores are very large, as large as the finest of the achorion; they have distinct nuclei. On adding water to the fungus little granules are detached, and float away in active motion from the mass. These granules are clearly an early stage of the more developed condition, and constitute a fruitful source of propagation. Many of the larger cells resemble torula very closely; indeed, they could not be distinguished. The whole of the mass is outside the hair, the structure of which is healthy; its cuticle, however, is intimately connected with the cellular aggregation, its scales intermingling with the granules, and it is detached when the mass is roughly handled, and torn away from the fibrous structure of the hair, leaving the shaft somewhat roughened. Now I have found these masses in an early stage taking origin within the empty envelopes of the ova of the pediculi. The remnants of the envelopes are often to be found intermingled with the parasitic masses; and as the latter grow larger, the traces of the former grow less and less, and finally disappear. This observation would lead me to think that the germs of the fungus find the glutinous material, that causes the adherence of the ova of the pediculus to the hair-shaft, and the envelope itself, a favourable nidus for their development; and this is the more evident from the fact that

the hair itself is uninvaded and healthy, and the parasitic vegetation is found on hair which has grown on the head of subjects of vigorous health,—subjects therefore not liable to parasitic disease, or to offer an inducement to the lodgment and development of fungi or algæ. The original source of the germs of the fungus in question is uncertain; it may be the water used for washing, or the rectum of the louse, as suggested: that is a point demanding further inquiry. That the ova remains furnish a fitting nidus, under the influence of heat and moisture, I have little doubt.

"These cell-structures found on the hair can be made to develop, for they seem to be in that very condition which is most favourable for rapid and free growth, and it is possible that, under varied influences, many different appearances may be produced. The aspect of the growth on the hair is wholly that of a fungus. Placed in water, the cells enlarge and subdivide, get filled with granules that move around within the cell-wall, and assume a greenish tint; in fact, take on the appearance of an alga. My friend Mr. Ray Lankester has grown them in soup, and I have watched them germinating in water, liquor potassæ, and sugar-and-water.

"The general results are as follows: The cells or outer portion of the mass seen on the hair undergo continuous subdivisions, so that we have double, triple, quaternate cells, and oftentimes a mass not unlike sarcina; in fact, certain conditions that give countenance to the view I have elsewhere enunciated, that sarcina is a form of penicillium. The subdivisions are

from 1-4000th to 1-3000th of an inch in size. They become filled with granules that enlarge into cells, and we have as a result large free cells filled with young ones. These brood-cells become covered over with processes resembling cilia, move about, and subsequently discharge their contents, which in turn give origin to the early condition of the fungus. In some of the large cells, processes like pseudopodia are put forth. The mycelial or central portion of the mass on the hair steadily develops, until it produces a vigorous crop of chained cells, the terminal filaments of which exhibit appearances identical with the fructification of oïdium.

"I have thought this brief history of the 'new fungus' would be interesting to the readers of the *Cutaneous Journal*. The power to produce disease depends upon the implantation of the early phase of the fungus upon the scalp or surface of an ill-nourished person of early age. I have no hesitation in saying, under these circumstances, a parasitic pityriasis or a severe form of tinea would result. Of the nature of the parasite I entertain not the least doubt, and whatever may be said to the contrary, the figures I have given attest the fact that it belongs to the same class as the achorion and the oïdium. The most interesting feature is the cycle of changes through which it runs. We have in one direction an assumption of an algal form; then amœbiform changes, a nursing or brood condition, as it were, which gives origin to the early granular or stromal form of fungus."—(*Journal of Cutaneous Medicine*, vol. i. No. 2, p. 176.)

CHAPTER XI.

PLICA POLONICA, OR POLISH RINGWORM.

This disease has a strange history. It derives its cognomen from *plicare*, to knit together. The ancients are supposed to have had some knowlege of this affection. The mythological crowns of the Furies—the giant Gorgon's head and the snaky locks of the Medusa—give some slight notions of such a state. Shakspeare was familiar with it :—

> "This is that very Mab
> That plaits the manes of horses in the night;
> And bakes the elf-locks in foul sluttish hairs,
> Which once untangled, much misfortune bodes."
>
> *Romeo and Juliet*, act i. sc. 4.

Some think that this disease was brought into Europe by the people who fled from the Mongolian Tartars; others that it developed in the snowy Alps. Whether its cradle was in Russia, or Savoy, we know that it grew and lived in Poland and Livonia, and still thrives there. Race has more to do with its continuance than climate. Germans who inhabit the vicinity of the Vistula, and Russians who belong to the original stock of the Poles, are untouched,

whilst the natives suffer greatly. The disease has always had an antipathy for water. Among the mountain passes it has travelled, touching the enfeebled and dirty, whether animal or human. Even the beautiful turtle-doves have not escaped the grasp of this filthy blood-hound. It has at last taken up its permanent abode in Poland. It appears to be caused by two conditions—enfeebled health and dirt. A predisposing tendency, and an exciting cause.

Symptoms. First, a severe attack is ushered in, by general malaise ; then a shiver runs through the frame, diving deep down into the very marrow of the bones. The scalp begins to swell. A red, tender, bleeding skin follows. Inflammatory products, with sanguineous discharge, appear amongst the tangled hairs ; and dust, ointment, and pediculi make up a horrible looking mass. The eyes, eyelids, and whiskers rot in like manner, and the furies often leave not the victim till every comate filament in the body and every finger and toe-nail is destroyed. Then comes the crisis—recovery or the grave. If the former, the diseased mass is pushed off the head, like a hideous mask. Erasmus Wilson saw a quantity of matted hair which had been cast from the head of a Polish lady of noble birth. If convalescence be once established, the recovery is often speedy.

Parasites appear to be the foundation of this affection. The tricophyton sporuloides has been found in the hairs and epidermis. The fungus dives down into the root of the predisposed, and commences its irritating process. The germinal matter at the base of the bulb of the hair, instead of losing its vital essence,

as it does in health, by elaborating the passive hair-filament, undergoes no change of consolidation, but pushes up cells laden with bloody fluid, which oozes from the pores. Soft, and saturated with sanguineous matter, the hairs cohere, and form an inextricable mass. When felted together it has been termed *plique en masse.* Sometimes the hairs curl, and form distinct locks ; it is then called *plique multiforme,* but at others the long tangled morbid filaments hang down the back like the tail of a horse ; it then assumes the name *plique en queue.*

Any attempt to sever this morbid union produces pain and great exhaustion.

There is a condition of plica in Poland, a modification of the above, which the physicians rather delight in than abhor. They look upon it much in the same light as the frequenters of some of our hydropathic establishments do a boil ; as a *crisis* much to be desired. Hence they rather foster the disease than attempt to prevent it. When the hair begins to mat the friends commence to rejoice ; the patient secretly feels that it will keep him in health, much in the same way as elderly people in our land glory in the continuance of an ulcer upon the leg. They fancy that it carries off bad humours. There would be more peace in the world if it did !

Dr. Raciborski read a paper at the Academy of Medicine, and exhibited an enormous plexus of hair, which had been removed from a demented clergyman in Poland, who, by seven years of neglect, filth, and melted wax, had contrived to grow his own coiffure like some of the African dandies. He had succeeded

admirably, and produced a rancid mass of corruption. Nature, disgusted with such an excrescence, had thrown it off, much in the same way as she does a damaged nail or a gangrenous limb.

A case of this kind was brought before the Pathological Society of London, and was submitted to a committee of scientific men to examine, and give their opinion upon. The following was their report:—"The mass was composed of skin casts, claws, and other fragments of lice, excrementa of lice, patches of sweat exudation, and fatty matter; fragments of hair, sporules of fungus, portions of vegetable matter, antennæ of pediculi, fibre of wood, various foreign bodies of uncertain nature, flakes of dried blood, and eggs of pediculi."—Pathological Society's "Transactions," vol. xvii.

A pretty compound of neglect and want of cleanliness was this! A week's soaking in water would cure this condition.

Treatment. Wholesome food, change of air, and cleanliness. Remove the diseased portion of hair, and apply cold water *ad libitum.*

CHAPTER XII.

DISEASES OF COLOUR OF THE HAIR.

THERE is a natural colour in hair, a shade characteristic of the human as much as the blush or bloom of a flower. Some may possess the golden hue, others the sable tint; one the flaxen, another the rich red colour. This is all consistent with health. Sometimes one lock differs in colour from the surrounding filaments, and is the product of some chromatogenous change. This is called "Trichonosis decolor."

How constantly are we consulted by patients who, in the midst of a luxuriant crop of jet-black hair, have a pie-bald streak, which they are compelled to dye. This is not unfrequently produced by some injury to the scalp in early life, or by pityriasis capitis of long standing.

We sometimes witness cases where the whole hair of the head changes colour. After a serious illness this is not uncommon. Alibert records two cases in which a head of bright red hair replaced one of dark brown; another where one of deep black took the place of a brown. Grey hair has been known to fall off in the aged and jet locks to take its place.

In the *Annual Register*, 1774, page 144, we find

the following: "At Vienna, Mr. Nazarella, aged 105, a few months before his death had new teeth, and his hair which had been grey by age became black again."

Mr. Villerme records a case of a young lady who had seen thirteen years of life roll by, when one winter the hair of her head departed and left a painful blank behind. But some months after the sterile cranium began to grow a black-coloured wool in one, and brown hair in another part of the head. But the dark and the fuscous soon blanched in the light, and after it had reached the length of a few inches some fell off, while the remainder was half white and half chestnut.

Three cases of ringed hair are on record. This is not uncommon in the animal world. The ichneumon and the quill of the porcupine are good specimens of the same. The first case was observed by Professors Schultze and Baum, the second by Dr. Landois, and the third by Mr. Erasmus Wilson. We shall give a short account of the case under the last gentleman's care, read at the Royal Society, March, 1867. The hair was taken from the son of a gentleman. He was delicate, but not diseased. His age was seven years. "Every hair of his head is brown and white in alternate bands, looking as if encircled with rings; and this change of aspect extends throughout the whole length of the hair, and gives to the general mass a curiously speckled character.

"When this hair was examined microscopically, the cylinder was found pretty uniform. The white segment was opaque, and the dark shade transparent. The filament was formed of a series of perfect and imperfect cells alternating; the one representing the

sleeping hairs, the other the wakening period." So Mr. Wilson believes.

Eble writes of blue and green hair, but the owners of it worked in certain mines. Green hair has been observed in those who work in copper mines, and blue in those of cobalt. This is simply the dust clinging to the hair and thus colouring it. Dr. Beigel has examined the case of a labourer in an indigo warehouse, who consulted him. He had had blue hair for twenty years, and when he washed his hair, which was not often, he was a living blue-bag to the water. Under the microscope this careful observer saw small particles of indigo clinging to the grey hairs. These could be scraped off, and the hair underneath was seen to be silvered and aged.

CHAPTER XIII.

PITYRIASIS, OR DANDRIFF.

PITYRIASIS is a disease of old standing. Hippocrates gave it its name, from the Greek *pitura*, bran, on account of its resemblance to the bran of wheaten flour. From his time till now this condition has filled the pockets of the hair-dresser with gold. The nostrums for dandriff have been as numerous as pebbles upon the sea-shore.

Pityriasis is simply an inflammation of the skin, in which scales are thrown off in abundance. There is no discharge of fluid. Dry as March dust, and quite as troublesome, it loves to form upon the head, but does not object to live upon the eyebrows, or to descend lower and attack the whiskers or even the body. It evidences its existence by itching of the skin; its heat, by redness of the surface; its destructive power by the scales of dead skin that fall. If neglected it sometimes produces falling off of the hair and temporary baldness. As a rule the hair is reproduced when the disorder disappears. The scales that fall in abundance, like snow in winter, are thin, small,

opaque, dry, and white. The slightest scratch dislodges them, but they are renewed as fast as they fall. The seat of this disease is in the deep layer of the epidermis. An excess of cells is constantly formed, and as constantly thrown off from the body. It is an hereditary affection, but is often provoked by irritation. A hard brush, a continual scratching, irritating washes, or rancid pomades, may be the exciting causes. It is more common in females than in men, and in those with long hair. The dark-haired are more liable to this disease than the light-haired, but those who have auburn locks it is loth to leave.

There are four kinds of pityriasis. We shall consider but two in connection with our subject. The first we have described. This dandriff may be confounded with seborrhœa, for they are so much alike. In seborrhœa, however, the scales are dull and dirty; in pityriasis they are white and pearly. In the former mischief the products are fatty and stick to the hair, while in the latter they are furfuraceous, and fall from the head as soon as they are formed. The parasitic disease, tinea circinata, has been mistaken for dandriff, but the circular character of the epiphyte and the use of the microscope at once will settle a doubt. The dry stage of eczema and psoriasis of the scalp may mislead, but the practical physician will discern in one the moist crust, and in the other the thickened derma.

The tap-root of pityriasis lies deep down in the system. Nutritive debility is at the bottom of all this scaling. Often the secret hereditary something, which once lived in the mother and now appears in the child,

has existed, and therefore in our treatment we must not forget tonics, of which fat is the most important. Iron, arsenic, oil, vegetable food in summer, water-cresses, and salad mixed with olive oil and vinegar, will help the cure. If this disease be associated with piles, which it often is, rhubarb and gentian will do much good.

Externally avoid all irritation. Remember that we have an inflamed skin before us. Let it be treated as a stubborn child—killed with kindness. "No scratching allowed," should be placarded upon each skull, and no brush should be permitted to interfere with the hair. Daily wash the scalp with new milk, and soothe the irritated surface with rose-water and glycerine. An ointment composed of solution of acetate of lead (Goulard's extract), two drachms to one ounce of benzoated lard, applied night and morning, should be used at the onset of the disease. When it becomes chronic, nothing does so much good as twenty grains of the red oxide of mercury, mixed with one ounce of benzoated lard. If this fails, the nitric acid unguent will sometimes do good; ten drops of the strong acid to one ounce of elder-flower ointment. Sometimes one has recourse to the diluted nitrate of mercury ointment, or the ammonio-chloride largely diluted. The old borax and camphor lotion does some service. Sulphur creasote, carbolic acid, bichloride of mercury, and acetic acid, have all been recommended by the faculty, and deserve some attention.

It is somewhat curious to look back upon the various modes of treatment adopted by the ancients in this disease. Celsus calls it porrigo sicca, or dry

ringworm, and recommends the head to be shaved, the hair to be frequently combed if not removed, and the skin washed with nitre and vinegar, or labdanum with myrtle oil and wine. The Arabians, especially Serapion, ordered the patient to be bled, blistered, and purged; and if these remedies did not kill the disease or the patient, Galen directed arsenic to be well applied to the eruption. Paulus Œgineta tried to wash away the affection. He advised Cimolian earth and water to be freely used, and the juice of the beet-root, with frankincense, wine and oil, afterwards to be applied.

There is an affection called "Pityriasis Pilaris." This disease does not affect the head. It touches the hairy covering of the body and seals up the epithelial scales in the hair follicles, so that they cannot escape. Imprisoned and uncomfortable, they begin to swell. The orifice of the follicle becomes elevated and enlarged, and the skin looks like a nutmeg grater. These miniature mole-hills exist in groups upon the back, chest, and abdomen, and contain in their interior epidermic cells and fatty matter. They chiefly attack young men of scrofulous habits, and might be mistaken for acne, but a hair grows upon the summit of each tiny mountain and proclaims the disease. This condition gives rise to no itching or any other unpleasant sensation, but if left alone will remain stationary for weeks. It often exists with enlarged glands, decay of bone, or scrofulous sores upon some part of the body. It is generally a part of a diseased system, for, like the parasites, it rarely thrives in a healthy being.

Treatment. Cod-liver oil externally, internally, and

eternally. As long as the patient lives the most nourishing material must be taken. A cachectic and consumptive under-current must be kept in check by the oil. Tar ointment is a good application to the skin, so is carbolic acid and glycerine—the carbolate of glycerine of the British Pharmacopœia.

CHAPTER XIV.

PHTHEIRIASIS, OR LOUSE DISEASE.

No history of hair would be complete without this disgusting affection being mentioned, especially as it is as old as leprosy, and, like death, attacks equally the poor and rich. From the earliest days these minute creatures have occasionally troubled mankind, from Pharaoh upon the throne down to the lowest slave that tilled the land. How terrible must have been the plague upon the clean, carefully-washed Egyptian; the very dust of the land to become living atoms of torture and degradation! No nation could be more particular in ablutions than the dwellers upon the banks of the Nile. Herodotus tells us that the priests used to shave their heads and bodies every third day, for fear of harbouring a louse while occupied in their sacred duties. No profanation was so great as for men to enter a temple to worship, with any vermin upon their persons. Hence the rules for daily cleansings were most compulsory. Josephus informs us that the Egyptian people miserably perished from these vermin,

and that no ointment or wash was known that would destroy them.

Some Hebrew scholars have hinted that gnats were probably meant as the third plague of Egypt. They pin their faith upon the Septuagint translation of the Scriptures, and translate the Greek word *skniphes* as gnats, or aphides, or wood lice. Mr. Bryant believes that the seventy wise men called together by Ptolemy Philadelphus, to translate into Greek the Holy Scriptures, substituted for the Hebrew word *kinnim* the Greek *skniphes*, as being less detestable to the Egyptian king and people. In Exodus lice are unmistakeably mentioned, and by David, in the 105th Psalm, v. 31, corroborated. In the Talmud also the word *kinnim* is termed *a louse;* for, in the "Treatise on the Sabbath," we find the following: "As is the man who slays a camel on the Sabbath, so is he who slays a louse on the Sabbath."

The Jews were extremely particular in their Sabbatic work, for a man might catch a flea upon that holy day, but on no account was he allowed to kill it before the sun sank to rest.

In the Zend Avesta, the oracle of the Fire Worshippers, which is probably as old as Egypt, perhaps much older, these creatures are mentioned:

"When they dress their hair on the corporeal world, cut the hair, pare the nails; when they shear their locks or their beards, then come together the *Daevas** to this polluted spot of the earth. Then come together to this polluted spot of the earth the *Khrafetras*, which

* Devils.

men call lice; which destroy men's corn in the corn, the clothes in the clothes."*—"Avesta Vendidad," Fargard xvii.

These vermin appear to be as old as the world. Whilst the Egyptian was sculpturing his monuments, the Persian his cuneiform characters, and the Jew writing his Hebrew characters, these much-dreaded creatures were living upon human blood. The Greek was destined to feed these microscopic troubles for a season, and named the affection caused by these intruders, phtheiriasis, from *phtheir*, a louse, which term we use at the present day. Fancy the noble brow of Plato infested with these inhabitants of unclean land; the life of the Athenian philosopher, Speusippus, rendered miserable by such a progeny; Callisthenes shut up in an iron cage, and covered with vermin, because he used his tongue too freely; or the noble Pharecydes, who flourished in the fifty-ninth Olympiad, longing for death to put him beyond the power of such tormentors. His letter to Thales, so full of pathos and sorrow, states: "I'm all over lice, so that I no longer admit any physicians or friends. But when they stand at the door and ask me how I am, I put my finger to them through the opening of the door, and show them how I am eaten up with evil; and I desire them to come to-morrow to the funeral of Pharecydes." Pythagoras went to visit him, but the man who had written the first books on natural philosophy amongst the Greeks placed his

* Which means, if they fall into corn, they spoil the corn, because men will not eat it; if in the clothes, because men will not wear them.

bitten finger through the door, and replied to his friend's inquiry, "You may see by my skin." This expression passed into a proverb amongst the philosophers, and when affairs were going badly with them, they would thrust out their forefinger and reply, "You may see by my skin."

The louse is a home-loving creature. It does what Nelson advised every Englishman to do, viz., its duty. Whenever one of these pretty insects "takes its walks abroad," it strives to secure a progeny to perpetuate its noble name. Leuwenhoeck put the procreative power of lice to a test. He took two of these insect ladies and put them into his stocking, which he wore day and night, that they might feast upon a physiologist's blood. They throve well upon the experimenter, and made themselves quite at home in his black silk stocking. In the course of a week, each female repaid her host by depositing fifty eggs, and then had plenty left behind in store. In twenty-four days the children of these fair denizens of parasitic land began to lay eggs, so that the experimenter calculated that in two months these two lice produced eighteen thousand living creatures. This is the tribe to populate our colonies!

There are three kinds of louse inhabiting three different localities. These have an *esprit de corps* amongst themselves, and never trench on each other's domain. The head louse rarely leaves its own neighbourhood, neither does the body louse its vicinity. The head occupant tills its own soil, and lives upon its bounty. It rarely takes a promenade down the whisker; neither does it favour the moustache or the

beard with its presence. Silently, without sound of trumpets, it sends forth from the occiput its lieges and its laws, and causes often much irritation and vexation by its presence. Eruptions begin to come upon the skin upon which it walks, and the hairs are sometimes known to fall out. Then there comes a disturbance, and one would think that a fire was at hand, for deluges of water and soap begin to inundate the hairy plantation, and destruction looms in the future.

The louse is an insect of the order Anopluræ, (parasitic). It has six feet and two eyes, but no wings. It has no mandibles, and cannot bite. It has antennæ, and a haustellum, by which it sucks blood. This is protruded into a pore of the skin (generally a sweat-pore), and the nearest capillary blood-vessel supplies it with its food.

Professor Schjödte has given a fine account of this apparatus.*

The pediculis capitis, which lives upon the scalp, will now occupy our attention. It loves to dwell in children's heads, and was believed by Linnæus to save them from disease; but, unfortunately, he was wrong, for it is the cause oftentimes of impetigo of the head. This parasite deposits its ova upon the hair, and gums each one to the filament with a neat clear tube of gum-like substance, which closely clings all round the hair, and forms a transparent cup in which the egg is deposited. Oftentimes we cannot find the creature, but we know of its existence by the presence of these nits upon the hirsute material. The ova spring into

* *Vide* Naturhistorisk Tidsskrift, ser. 3, vol. iii. Copenhagen, 1864.

life, and leave the casements clinging to the hair. There are two other kinds — pediculis corporis, or body-louse, and pediculis pubis, or crab-louse—neither of which ever leave the body and go to the head. In elderly people the body denizen is a great tormentor, and often produces prurigo. This was the affection that vexed the spirits and bodies of the Greeks. It lives in the flannel vest, or sleeps in the folds of the under garment. When it desires to dine, it marches forth from its warm cottage upon the human skin, sucks the blood, has its fill, and then retires to rest.

The pediculus pubis, or crab-louse, is the parasite of young people—of adolescents. In children it may live in the eyebrow and eyelash, and was described by Celsus. After childhood it wanders over the long hair of the body, visiting the beard and whisker on its way to the armpit or pubis. It never goes beyond the frontal line, and leaves the head untouched. Now these creatures know what is good, and they have a preference for dirt. "If dirt be a good thing in the wrong place," it certainly is so upon the body; for as carion attracts the vultures and birds of prey, so do ill-nourished and unclean bodies these vermin. They do exist in the healthy and cleanly sometimes, as the student of medicine can testify, but they leave no skin disease behind.

Treatment. Thales imagined that in water the secret of life might be found. Certainly the destruction of parasitic life may be found therein. A warm bath, with plenty of soap and salt, night and morning, will do much to remove these plagues. An ointment of the white precipitate (ammonio-chloride of mercury)

of the British Pharmacopœia, well applied twice in the day, will soon effect a cure. Change of raiment is frequently necessary. Some use turpentine, others calomel, to get rid of these pests. The Scottish bard Burns thought highly of red lead, and red precipitate of mercury ointment, for the cure of these creatures :—

"My sooth! right bauld ye set your nose out,
As plump and gray as ony grozet;
Oh! for some rank mercurial rozet,
Or fell red smeddum;
I'd gie ye sic a hearty dose o't,
Wad dress your droddum."

Dr. Squire speaks highly of the ointment of staves-acre. Two drachms of the bruised seeds, digested for some time in one ounce of melted lard, and strained while hot. This remedy was used by the Arabians many centuries ago. Alsaharavius and Rhases extolled its virtues; Celsus, much earlier, prescribed it; and Paulus Ægineta directed for the cure of lice in the eyebrows that the part should be first well washed with sea-water, and then one part of stavesacre and two of alum should be used frequently. These creatures have not unfrequently been taken as a medicine. I saw an elderly man once who was suffering from malignant disease of the liver, and he had taken a large quantity of these vermin in jam, for the cure of the jaundice accompanying that disease. Some nautical friend, in the plenitude of his affection, had prescribed and supplied this living remedy.

CHAPTER XV.

DISEASES OF THE SEBIPAROUS GLANDS OF THE HAIR FOLLICLES.

THESE may be divided into three kinds :

Morbus pilaris, or torpor of secretion of the sebiparous glands.

Narcosis folliculorum ; deficiency of secretion of the sebiparous glands.

Stearrhœa, or seborrhœa ; excess of secretion of sebiparous glands.

MORBUS PILARIS.

This consists of torpor of the sebaceous secretion. A film of hardened sebaceous material closes the orifice by which the young hair makes its *entrée* into the world. The imprisoned filament, growing in spite of the windows of light being blocked up, twists itself into a spiral coil, and there it remains at the mouth of the follicle waiting to be released. A number of these twisted hairs push up the surrounding skin, and if the heads of these pimples are rubbed off, the deformed hairs will appear. This condition exists chiefly upon the body—the legs, thighs, and back, and is closely allied to Pityriasis Pilaris, if not identical with it.

Treatment. A good yellow soap-wash is the best remedy. If this fails, solution of potash (Liq. Potas.), after which, the nitric oxide mercury of the British Pharmacopœia, diluted with twice its bulk of benzoated lard, should be applied.

NARCOSIS FOLLICULORUM.

Narcosis folliculorum is a condition dependent upon a chronic inflammation of the hair follicles.

This disorder is prone to attack women and children. It evidences itself often by the presence of grey hairs, or falling off of the comate covering. The hair always looks dirty, as if snuff, or the particles that float in the sunbeam, had settled upon it. The patient cannot cleanse the hair. If she brushes vigorously, the hair comes out in handfuls. If the scalp be closely examined, masses of granular matter will be found around the mouths of the hair follicles, or yellowish dirty-looking beads threading the hair filaments. The more it is brushed, the worse the hair looks, for the furfuraceous scales being disturbed upon the skin, hang upon the hair, and look anything but respectable and clean. The hair itself is parched and starved, and the root is dry. The moisture which in health it ought to receive is stayed, the sebaceous material which, in a normal state, keeps it beautifully oiled, is dried up; so the poor filament, like a man without food or water, dwindles and dies.

The treatment is simple. Equal parts of olive oil and lime water applied daily. Ablutions frequent-

and well performed. After a few days of such appliances, nitric oxide of mercury should be used with benzoated lard in the proportion of one scruple of the former to one ounce of the latter.

STEARRHŒA, OR SEBORRHŒA.

Stearrhœa, from the Greek word *stear*, fat ; *peein*, to flow, is a sebaceous flux. It is a disease of the sebiparous glands of the hair follicles, in which there exists an augmented secretion of fatty matter. It is sometimes associated with loss of hair. It commences by itching of the skin, dryness of the tissues, and furfuraceous desquamation. Then the hair falls out, a sebaceous material is distributed amongst the roots of the comate structure, and the head looks as if it were filled with dust or thick dirt. Sometimes a redness comes upon the cuticle, and the exudation is tinted with a similar colour. It attacks the head, the forehead, the nose, and the eyebrows, and leaves thin yellow crusts behind, which consist of fat and epithelial cells. This disease resembles dandriff in the head, and is often treated as such ; but upon examination a greasy material exists instead of cuticular scales—in one the laminæ are like suet, in the other dry as dust.

If it attack the eyebrows, the outer half is sometimes left bald ; if the head, the hair refuses to grow well. The new filaments are short, thin, and deficient in pigment. They look as if they were half-starved. There is a torpor in the surrounding structures, and

the power of repair is impeded. The itching sometimes becomes intolerable.

Treatment. Internally, cod-liver oil and arsenic or iron. Externally, liq. potassæ diluted with twenty parts of cold water, glycerine and alum, nitric oxide of mercury ointment, and carbolic acid soap. The great thing is thoroughly to remove the crusted scales, with a little weak warm soda and water at first, and then apply the various remedies.

CHAPTER XVI.

TRICHIASIS CILIORUM.

In the human system we find the hair follicles placed not perpendicularly in the skin, but obliquely. The direction of the filaments is governed by laws as precise as those of the teeth. Upon the head, the crown is the centre from which radiates all the hair in a regular symmetrical order to the circumference. Occasionally we find two centres—the hairs then converge in the middle line of the head. On the forehead the downy hairs proceed from a middle vertical line; at the root of the nose is another starting point, and so all over the body there exist various centres or pole stars around which the hairy world lives and grows.

Sometimes, however, we have to deal with rebellious subjects, who, like ruffians in the world, disobey the laws. The disease termed *Trichiasis Ciliorum* is one of them. For many centuries truant hairs have been discovered occasionally growing upon the eyelids in a contrary direction to their compeers. Instead of being a protection, they are the source of irritation to the eye. Hairs in health grow outwards; these grow inwards, and rub against the eye-

ball, giving rise to much discomfort and often to inflammation. Galen had a very summary way of dealing with these intruders; he writes thus:—

"Having first torn out the hairs which irritate the eye, anoint the part immediately with the blood of a frog by itself, or with the ashes of a white chamelion, or the blood of bugs."

Celsus coolly recommends—

"An iron needle, thin and broad, like a spatha,* must be put into the fire, and when it is red-hot the eyelid being lifted up in such a manner that the offending lashes are in view of the operator, it must be passed from the angle close to the roots of the hair, till it move over the third part of the eyelid; then it must be applied a second and third time as far as the other angle. The consequence of which is, that all the roots of the hairs being burnt, die away."

He also advises a needle to be threaded with a woman's hair, then to be passed through the eyelid, and the rebellious hair to be fastened back to the skin, and kept tied till its stubborn will has been bent.

Our treatment has not much changed in seventeen centuries. We seize these intruders with a pair of ciliary forceps, root them out from the eyelids, and with caustic destroy their follicles. This is a very easy thing to write, but no trifling matter to perform. To lay hold of a stubborn hair and extract it without breaking it, requires a skilful hand and a well-made instrument, for if the filament be fractured, the stump remaining occasions more distress than did the full-

* Spatha was a knife ending in an acute point and double edged.

grown hair. A better plan is to apply to the papillæ of the eyelash, pure liquor potassæ. This requires caution, lest the eye be injured. A needle moistened with the solution should be carefully placed in the direction of the papillæ. Slight inflammation follows this application, and in a few days the hairs fall out, or can be easily removed with the forceps. If a bunch of these lashes turn into the ball, they may be destroyed by a depilatory carefully used. A fine polished steel spatula should be placed between the lid and the eyeball, and the sulph-hydrate of calcium should be applied to the roots of the lashes and allowed to remain for a few minutes, after which it should be carefully washed away with a moistened sponge. After this operation the hairs will die. Sometimes the whole lid turns inwards; it will be necessary then to operate with the knife. Celsus recommends such an operation, and describes minutely the way to perform it.

Trichiasis Coacta is a disease of poverty or wealthy-spoilt children. It is a condition of neglect and dirt. If hair be left uncleansed or uncombed, it is prone to become matted together, the filaments interlacing until, like the Gordian knot, it must be cut through and removed. It is not unlike the mild forms of plica polonica, but the hair when cut does not bleed or exude liquid material. In long illnesses, especially in women, we sometimes get this condition, and not unfrequently in children who have become bed-ridden from hip-joint disease. The scissors well applied is the remedy, and soap and water freely used generally effects the cure. The hair should be kept well oiled and combed to prevent a recurrence.

CHAPTER XVII.

COLOUR OF HAIR IN RELATION TO CHARACTER AND DISEASE.

THE colour of hair is influenced by climate, but much more by geographical distribution. Nations do not much change. The physique of the English people is much the same now as when Julius Cæsar landed upon our shores. It is true that Scandinavia, Denmark, and Germany have sent their sons into our land, but they have only altered the language, not the people. Celt and Saxon are one race. In separating the dark from the light-haired, one has simply to draw a line from the north of Ireland to the Himalaya mountains, and to the north will be found the tall fair people; to the south, the short dark race of mankind. But some may remark that it is the effect of heat—that climate is everything in the production of colour. Not so! Because, if we go farther north than Denmark, to the upper part of Norway, we come to the dark Laps—a Mongolian race distinct, yet not unlike the black southerners. Professor Huxley divides the European-Asiatic continent into three belts. First, the dark Laps; second, the fair Celts; third, the dark Celts. The great mass of mankind is dark. Dr. Beddoes

found amongst the English people that out of 726 women that he examined, 22 were red-haired, 95 fair, 33 black, 240 brown, 336 dark brown. My own observations were among both sexes, and in 684 cases I found 18 red, 13 auburn, 34 black, 148 light brown, 471 dark brown. Fifty-six of these had light brown hair and red beards.

In the present day, the human family has been divided into the following races :—

Caucasian, fair skin, hair of varied colour, fine, long, and curling ; beard abundant.

Mongolian, sallow olive-coloured skin, hair long and straight, of a dark colour ; beard scanty or none.

Ethiopian, dark skin, hair crisp, black woolly.

Malay, skin reddish brown, hair black, coarse and lank.

American, brown or copper-coloured skin, hair long and lank ; scanty beard.

Papuan, purplish colour of skin, harsh ; hair wiry, coarse and frizzled.

The white-skinned have straight and flowing hair, and can grow a luxuriant beard, whilst the brown human animal must go without this chin appendage.

The ancients believed in temperaments ; that the colour of the hair and the hue of the eye betokened man's moral qualities. Aristotle writes :—

"Weak hair betokens fear, and strong hair, courage. The people of the North are generally manly, and have strong hair, while those of the West are more fearful, and have more flexible hair."

The followers of Galen had four temperaments. Paulus Œgineta thus describes them :

"People of the hot and moist temperament have soft, fleshy, rather hairy bodies; their hair is straight and yellowish, and does not soon fall off. They cannot endure watching. They are prompt to action and to anger, but easily appeased."

This would be termed the *sanguine*, from which the courtiers come.

"The cold and moist have narrow chests, hairless bodies, soft white skins, feeble muscles, ill-formed joints, and invisible veins; their hair is lightish, especially in youth, and they do not become bald; the more marked the temperament the lighter the hair."

This may be called the *phlegmatic*. Labourers and soldiers belong to this class. The character spiritless, inactive, and indolent.

"The hot and dry are very shaggy; the hair of their heads is of rapid growth, black, thick, strong, and curly, but they soon become bald: the veins and arteries are large, the pulse strong, the body firm, muscular, and lean, the skin hard and dark; their excretions are small, they require little sleep; they are active, passionate, and implacable."

This may be termed the *choleric*. Men of this class are impatient, impetuous, and prone to quarrel. Orators, generals, and ambassadors fit into this niche.

"Cold and dry, having a white skin, slender bodies, fine muscles, not without some fat; they have small joints and little hair, and what they have is tawny."

The moderns would assign to this class *black hair*. Lawyers and parsons may rest here. The character is timid, desponding, suspicious, and slow to business. This is the melancholic of Lavater.

Dr. Prichard divides his map of humanity into two divisions; one, the fair or xanthous of the sanguine temperament, the other, the dark or melanous of the choleric temperament.

Dr. Spurzheim divides his living brethren into four classes:

Lymphatic, with pale white skin, fair hair, and roundness of form. Intellectual power feeble and slow.

Sanguine, with plump body, light or chestnut hair, blue eyes, great activity of the arterial system, and of an animated countenance. These are easily affected by external impressions, and possess greater energy than the former.

Bilious, with black hair, brown or yellowish skin, black eyes, firm muscles, and harshly-expressed forms. Their faces speak, and they manifest general activity.

Nervous. Fine thin hair, delicate health, general emaciation and smallness of muscles. These are vivacious in sensation—nervous and sensitive.

Bostock establishes five temperaments. Racle writes lucidly his views, but all point to the same sub-division. Lavater watched the changes that passed over the world like clouds across the sun, and he has given a large book to the public of his experience. He thought that *black hair* indicated strength and a predominance of the bilious temperament, and took as his examples the Spaniard, Malay, Mexican, Indian, and Negro.

He thought that *red hair* betokened intensity of feeling and purity of character. This he termed the *sanguine*, to which the Scotch, Irish, Swede, and Dane belonged.

The *auburn tint* told him of delicacy and refinement of taste, and if the mind be cultivated, fine moral and intellectual powers. This was the lymphatic. The Germans, Danes, and Anglo-Saxons were quartered here.

Dark brown hair combined the strength of the black with the exquisite susceptibilities of the light-haired, and formed the best. Of such are the English and American races. If the hair naturally parted in the middle, to him it indicated symmetry and beauty of soul—the beautiful feeling of the woman, with the thought of the man. Homer, Virgil, Shakspeare, Milton, Goethe, Dante, Raphael, Titian, Handel, Mozart, Tasso, Chaucer, Burns, Keats, Hoffman, and Longfellow, belonged to this region.

In crinkly, wavy hair, the laugh of vivacity and the excitability of cheerfulness found a home. In straight hair, the stream of life flowed evenly, honesty of purpose, a clear head, and good natural talents lived.

The eyebrow spoke to Lavater, and he read in this hirsute arch the characters of men with whom he lived.

The clear *thick roof-shaped*, over-shadowing eyebrow, without wild bushiness, indicated a sound manly nature. It bespoke a mature understanding, but not original genius. Statesmen and counsellors have such.

Horizontal eyebrows denoted understanding, a capacity for framing plans, but coupled with a coldness of heart that made the true man shiver.

Wild eyebrows were never found with a mild, ductile, pliable character.

Waving eyebrows, short and thick, denoted a capacious memory, with ingenious, flexile, mild, and good characters.

Thick black, strong eyebrows, which decline downwards, and appear to lie close to the eye, especially when they shade deep, dark eyes, are capable of doing any revengeful or wicked acts.

There are certain general outlines of colour and countenance that somewhat betoken the natural, moral, and mental condition of mankind. Education comes in and regulates to some extent the ethical qualities, and religion bends the animal passions into submission, until the natural tendency is obliterated. For instance, a sandy-whiskered man may be chaste, by strict watchfulness of thought, and complete subjugation of passion, and yet retain his blonde hair. The remarks, therefore, that I am about to make respecting colour of comate material, will refer only to the natural tendency, not to the educational power or subjection.

As a rule, they who have *blonde* hair are tender-hearted, possess bodily energy and moral force, yet are easily overcome by charlatans and quacks. Ready to believe anything, and to act upon that belief.

The possessors of fine black hair, accompanied by a dark skin, are pure and good. Sometimes strong in will, always mighty in faith.

Coarse black hair speaks of power of character, united with sensuality.

Men who are blessed with dark brown fine hair, have less to resist than the blonde or the light brown. Naturally they are good, if well brought up. Sin may fight against them, but the fine natural sensibility, united with great strength of character, is able to say, "Get thee behind me, Satan."

Coarse red hair tells a tale of tendencies to animal enjoyments and passions. Such men must be always on the alert, if they would keep themselves unspotted. Fine red or auburn betoken, when the owner is thoroughly well-educated, a splendid character; a capacity for the highest enjoyment—a condition the best for both worlds.

A man with stiff, harsh, upright hair, that looks as if every filament was at enmity with its neighbour, can, by patience and well-doing, sweeten the naturally sour disposition, and make honey out of vinegar; the individual who, with crisp, curly, or mossy hair (as the Greeks would term it), can check the natural impetuosity and rashness, and becomes as sage as a philosopher, and twice as useful.

Long, straight, smooth, and glossy locks, denote evenness of disposition, a clear head, and a warm heart. Persons possessing such a comate covering often have brilliant talents, accompanied by slothfulness and want of energy. Nature evidently has blessed them, but they often fail to bless themselves.

We now come to disease in connection with colour. Dr. Beddoes, of Bristol, has added largely to our stock of knowledge in this department. The tables subjoined prove that the light-eyed and fair-haired are, on

the whole, less subject to disease than the dark. The following had *light eyes :*

	Numbers observed.	COLOUR OF HAIR.				
		Red.	Fair.	Brown.	Dark.	Black.
General population	5000	2·5	12·1	28·2	12·7	·6
Hospital ditto ..	1000	3·	10·6	24·4	15·	·5
Consumptive ditto	166	3·	12·	21·6	17·	—
Cancerous ditto ..	66	3·8	6·8	26·5	9·9	3·
Insane ditto ..	156	2·2	12·	37·3	12·2	·3

Those who had *Neutral Eyes :*

	Numbers observed.	COLOUR OF HAIR.				
		Red	Fair.	Brown.	Dark.	Black.
General population	5000	5·	1·3	4·8	5·5	·5
Hospital ditto ..	1000	3·	1·5	6·	7·2	·7
Consumptive ditto	166	—	·6	6·	6·	1·2
Cancerous ditto ..	66	—	—	2·3	11·3	1·5
Insane ditto ..	156	—	·6	5·	5·	·6

Dark Eyes :

	Numbers observed.	COLOUR OF HAIR.				
		Red.	Fair.	Brown.	Dark.	Black.
General population	5000	·8	·8	6·4	20·2	3·2
Hospital ditto ..	1000	·5	·8	7·2	18·7	3·6
Consumptive ditto	166	·6	·6	3·5	19·5	8·4
Cancerous ditto ..	66	—	—	·8	25·	7·6
Insane ditto ..	156	—	·6	4·	13·7	6·

British Medical Journal, 1862.

From these statistics we learn that the black-haired

people are the most prone to consumption, the brown type the least so.

Rilliet and Barther found dark hair more common amongst the tuberculous cases. Dr. Hyde Salter thought that acute rheumatism preferred the red-haired, but my own observation does not confirm that opinion. Amongst the sick I have found that the—

Black-haired are prone to cancer, cataract, and consumption.

Dark brown are liable to acute rheumatism, diseases of the heart, and eczema.

Light brown to diseases of stomach and skin affections.

Red get pleurisy, pneumonia, ague, and neuralgia.

Blonde—to lupus, roseola vaccinia, and urticaria.

Auburn—pleurisy, pneumonia, asthma, and skin disease.

Amongst children who are strumous, the red-haired predominates.

CHAPTER XVIII.

CLEANLINESS.

"CLEANLINESS is next to Godliness" is an aphorism wise and true :—

> "Even from the body's purity, the mind
> Receives a secret sympathetic aid."
>
> *Thomson.*

So thought the pagan Greeks and the worshippers of Osiris. Nothing contaminating could approach the altar. Homer represents Hector as being afraid to make even a libation to Jupiter with unwashed hands, and declared it would be impious while besmeared with blood to pay his vows to the great god. In the Ion of Euripides we read :

"Ye Delphians, ministers of Phœbus, go to the silvery waters of Castalia, and, having cleansed yourselves with its pure dews, then go to the temples."

Every person before attending a solemn sacrifice was compelled to be purified with water. Ablution of the whole body was required for the celestial gods, but sprinkling was considered sufficient for the infernal deities. In the temples were placed vessels filled with lustral water. Some of the worshippers pulled the hairs from their heads, and offered them to the gods.

The Grecian philosophers were not all so fond of water. Archimedes, although wise in hydrostatics, avoided water externally. Cinesias, of Thebes, wore stays of lime-wood, as filthy as the ground upon which he trod; and Patrocles, the wealthy Athenian, was afflicted with hydrophobia, for Aristophanes tells us:

"I am come from the house of Patrocles, who has not washed himself since he was born." The aged Greeks looked upon washing and bathing as a degeneracy. Socrates and his disciples avoided ablution for the sake of economy, and the noble Seleucus, the Roman, for conscience sake. Thus he writes:

"Your daily bather is no better than a fuller. Water has teeth which dissolves away one's heart day by day." Ælian tells us that the Dardans only washed thrice in their lives; and history informs us that the hairy St. Angus, perspiring and unwashed, worked for years in a barn, till the scattered grain took root and grew upon his hirsute carcase. St. Etheldreda, all royal as she was, never knew water outwardly after she took the veil. "Never mind," said St. Romnald, "she keeps her heart clean, and that is washing enough."* Thomas à Becket wore sackcloth next to his skin, and changed it so seldom that it filled with dirt and vermin. Strange anomaly—this man daily washed the feet of thirteen beggars, but the beggar never washed himself. Father Nicotas, the dwarf friar, never polluted himself with water—"For what is man that he should so foster pride?"

* Is it possible that the term "odour of sanctity" arose from this cause?

In our own day, this condition has not yet died out. Only last year, St. Ivan died in a lunatic asylum at Moscow. This anchorite made a sacred vow never to wash his face, comb his hair, or change his dirty rags ; and when he passed away, the crowd of the lower classes whispered, or lamented in the market-place, this sad wail—"Ivan is dead ! Ivan is dead !"

The followers of Peter Mironoff in Russia wash themselves in quass (Russian beer), and then drink the slops.*

Cleanliness is essential for a healthy growth of hair. The filaments are not like weeds, requiring soil for their nutriment, but they live upon healthy blood in order to thrive. Constantly do we find that gentlemen rarely wash their hair. "Brushing is quite enough," was the reply of one of my patients, whose head had not been laved in water for ten or twelve years. "I have brushes with long and short hairs, and these are washed daily," was the rejoinder of another. Once a month at least should the whole cranium be washed, and then thoroughly dried. Nothing is so cleansing as the yolk of an egg. This should be rubbed well into the roots, then washed out with warm water, followed by a cold ablution ; the hair should then be dried with coarse towels. The next morning a brisk brush, or a little pomade or perfumed oil may be used. Friction polishes the hair as well as bandoline or unguent; but with some "it is too much trouble." Often in the nursery a little grease covers over a multitude of omissions, and we see children with their heads plastered with bear's grease or pomatum.

* Hepworth Dixon's "Russia," vol. i.

One of my little patients once made a sage remark to his nurse, who was relating how rough the sea was: "Put some pomatum upon it, and it will soon be smooth."

Oleaginous substances are not detrimental to the growth of hair, and are only injurious when they cover in dirt; when they take the place of brushing or cleanliness, then are they obnoxious. Very few of the pomades that have been examined by us have contained anything harmful. One cream (an Indian cream) possessed a large quantity of potash (Liq. potass.), but with this exception, all might be used with impunity. Castor oil, white wax, olive or almond oil, and spermaceti were the chief ingredients, perfumed in various ways. Pliny, in speaking of the origin of perfumes, says that the Persians first used them to counteract the bad odour of dirt about their persons.* So with many of the pomades examined:

* This is not true, for the Fire Worshippers were most careful as regards cleanliness. In their religious oracle, the Zend Avesta, we read: "Three times let them wash the body, three times let them wash the clothes, three times let them recite the Gathas."—Vendidad, Fargard xii. v. 6.

And again: "The water well flowing, well washing, desirable for both worlds."—Yacna, xxxviii. iv. 9.

Again, in one of their prayers, cleanliness is imperatively taught: "If I have omitted the recitation of the Avesta in mind, and also of strewing about hair, nails, and toothpicks, or not washing the hands, all the rest which belongs to the category of dirt and corpses; if I have thereby come among the sinners, so repent I of all these sins, with thoughts, words, and works, corporal and spiritual, earthly as heavenly, with the three words—Pardon, O Lord! I repent of sin."—Khordah Avesta, Patet Aderbat, xlv. 7.

they appeared to be scented highly to hide the rancid material.

Too hard brushing tends to produce dandriff; so that I cannot agree with a celebrated hairdresser, who announced: "You cannot brush the head too much, nor the hair too little."

In *brushing the hair*, the object is to cleanse it from extraneous materials, such as feathers, dust, dandriff, and concreted sebaceous material, which often oozes out upon the scalp, to make it smooth, and to bring truant hairs into the right place, and set at harmony discordant filaments. Sometimes when the head is upon the pillow, hairs get pulled out of their accustomed shape, so they need gently drawing into the hairy mass. This is done with the brush.

The comb is the antagonistic agent: what the brush brings together the comb parts—in the machinery, all work to one end.

Cutting the hair, or polling it, as it was termed in the olden times. Absalom polled his hair once a year, the Egyptian once or twice a week. The Greek and Roman youths spent much time in the barbers' shops, talking of the fashions of the day. Amongst the Romans it was unlawful for any mortal either to pare his nails or cut his hair on shipboard, under a penalty of forty stripes, unless when the wind was wroth with the waves. There are many superstitions still existing regarding the cutting of hair. Amongst some of the peasantry around Greenock, it is considered unlucky to let hair lie about, or to throw it away. The country women pick up every hair and burn it, lest the birds should build their nests with it. Wo

to the unlucky being whose hair was thus used! This is not unlike the Fire Worshipper's credulity, who employs a priest to bury the incised locks that are cut from his head, lest the devils should possess them and curse the owner. Sometimes the lovelocks were cast upon the troubled waters to appease the wrath of the howling storm. Norma tears a handful from her head, and strewing it upon the waves, exclaims,—

> "To appease thee, see I tear
> This full grasp of grizzled hair:
> Oft thy breath hath through it sung,
> Softening to my magic tongue,—
> Now, 'tis thine, to bid it fly
> Through the wide expanse of sky."

An old book published in London in 1664 recommends that one should bathe when the moon is in Cancer, Libra, Aquarius, or Pisces; and should cut the hair off the head or beard when it is in Sagittarius and Pisces. Another old writer suggests that "children's hair should be cut the last week in the moon." So one sees that Astronomy should be studied by all hairdressers and physicians, if they would be wise. Galen was not far wrong, according to these old authors, when he declared that every physician should possess a knowledge of the celestial world, and that "those who were ignorant of it were no better than homicides."* Astrology and Astronomy were synonymous amongst the ancients.

It was not Nature's intention that we should leave

* De Ingenio *Sanitatis*, lib. viii. c. 20.

the hair uncut, any more than that we should permit the nails to grow to their full length. The knowledge of trimming was given just as much as the acquaintance with fire, by which we could cook our food. The pauper Paraclete Schönhere, like the Nazarite of old, would not allow scissors to approach his locks. His hair fell in masses upon his shoulders, covering them like a mantilla. St. Paul said it was "a shame for a man to wear long hair;" and parish priests and clumsy friars have repeated this text until it has been worn thread-bare by passing through so many fingers. Tillotson, in one of his sermons, said: "I can remember when the wearing of the hair below the ears was looked upon as a sin of the first magnitude, and when ministers generally, whatever the text was, did either find or make an occasion to reprove the great sin of long hair; and if they saw any one in the congregation guilty in that kind, they would point him out particularly, and let fly at him with great zeal."

There is still a canon extant, dated in 1096, which declares that they who wear long hair shall be excluded from the church while living, and not prayed for when dead.

Serlo, a Norman bishop, turned hairdresser, and cropped the whole of his congregation one Sabbath.

Men and women should have the hair cut regularly about once a month. The ends of the hair split, and require to be snipped off. The weak hairs require to be cut close, the pruning carefully applied. No one should attempt to keep his own cranial parterre incised, for every man becomes a fool when he is his own

doctor or lawyer. In trimming the comate covering, skill and attention are required. Sharp scissors, and still sharper eyes, are necessary for a successful hair-dresser. Some filaments grow faster than others, and need to be cut back; others are impoverished, and are better brushed out or epilated. Many hairs are victims to an artificial state of society—have been twisted and tortured by Dame Fashion, so that the scissors and the comb must rectify their uneven and ragged condition. Hair can bear a great deal of rough usage. None are so cruel to their locks as ladies, and yet how few lose them. They dye them with the strongest poisons, and yet they live. They scorch them with hot irons, and yet life is not put out. From early childhood, when screwed up in curl-papers, to old age, when covered in with false hair, these locks always look pert and fresh. Neither crushed by fashion nor chilled by neglect, the hair grows silently night and day. One week in wild luxuriance, it is allowed to assume the *boucle cascadeuses*, the next combed back in the form of the Russian *bandeau;* sometimes in the *bandeau Grecque* style, the short hairs dance upon a carpet of their flattened neighbours, or are half strangled by being tied up into a double Grecian knot; one season covered with jewels and powdered *à la mode de Daubigny*, another time converted into a Dubarry coiffure,—and all these changes the hair endures without breaking, fretting, or dying—such is its patience.

CHAPTER XIX.

HAIR DYES.

It is a peculiarity in Nature that the human is always desiring what it does not possess. If, like Dido, golden filaments hang from the brow, the lady will try to make them black; if sable hair grows, then she will long for the blonde tresses of Atalanta. From Astyages upon the throne down to the servant-maid that cleans the door-steps, we see the tendency to hide Nature's milestones by painting them black, or changing the colour that belongs to them to that which pertains to another. Myrepsus pleased the pretty Greeks by turning their locks to gold by a vegetable dye. Œlian extols the beauteous Atalanta, and adds: "The colour of her hair was yellow, not produced by any womanly art, but altogether natural." Tertullian of Carthage censures some of his flock, that "they are constantly employed in giving their hair a fair colour." St. Jerome also, two centuries later, informs us that "the people dye their hair red." The ancient Briton prized his crinal covering, and dyed it with blue woad. The Persians were partial

to this tint. They had a blue back which was much admired; so the Parsee silently pocketed the indigo, and when no one was nigh, smeared his cranial covering.

Martial ridicules the Roman ladies and gentlemen. Sending a lock of German hair to Lesbia, he writes:—

"Your hair, Lesbia, the true golden hue hath taken;
I send you a genuine lock to prove your dye mistaken."

And to a male friend he writes: "You ape youth, Latinus, with your dyed hair; and you who were but now a swan, are suddenly become a crow! You will not deceive everyone. Proserpine knows that you are hoary, and will snatch the mask from your head."

The beautiful Lais repulsed the hand of the aged sculptor Miron, when he made her an offer of marriage. The grey hair of the artist was supposed to be the cause of his rejection. A day or so afterwards the suitor again appeared with hair as black as a sloe, and again pressed his suit. But the witty coquette laughingly exclaimed, "How can I grant thee to-day what I refused to thy father yesterday!"

Some forty years ago our rural forefathers came to London with their silvery manes floating in the air, and returned to the rustic circle like Œson of old, new to the backbone. The process then known to renovate old people was clumsy and tedious, but not such a painful operation as that of Medea. There was no cutting of throats and letting out of old blood, no purifying of fire and sulphur, no boiling in cauldrons of infusions of herbs, but a plaster of litharge and lime

was daubed upon the pate, *horâ somni*. But no sleep for the patient! The dirty mass begrimed the hair, and instead of the leaves of the peaceful olive, the atrocious cabbage-leaf or the oil-skin cap was used, and thus bound up like an Egyptian mummy the unfortunate being was left till morning. When the sun arose the man got up, and having brushed out the filthy compound upon the floor of his room, began to oil his comate treasures, to admire his renewed youth in the mirror, and then to return to the bosom of his family with hair as black as soot, and nearly as dirty.

The next step in advance of science was the lunar caustic method — called lunar, because it was all moonshine. Paterfamilias eased himself of some ten shillings and sixpence, and brought to his residence two small phials containing the precious juice of eternal youth—one the solution of nitrate of silver, the other the mordant to bring the hidden wonder to light.

The octogenarian first cleansed his hair with soap and water, and whilst drying it by the fire, mused upon what he should soon be—young and beautiful. Reading and re-reading the directions upon the bottles like the betrothed does the marriage service, the veteran takes up the Eau Orientale, or Aqua Grecia, and with tremulous hands applies the precious solution to his locks with which his children used to play, and after awhile the potash wash follows. How that heart beats within! how that trash stains without! Fingers are blackened in the process. So after wiping soiled hands upon the best towels, having smeared the

skin as well as the hair, the hopeful man lies down to rest like an Englishman who has done his duty. The morning comes as well as the night. The sun shines in at the window and makes the old man blush. But behold ! the peach bloom of health has become brown, the towels blush brown, and the sheets and pillow-cases also. All is dun-brown, except his hairy covering, and that has all the colours of the rainbow blended. With horror the aged patriarch views his visage in the glass, rushes to the panacea of all evils, soap and water, and rubs and scrubs till the skin is nearly all off, and in despondency he resigns himself to his fate. But time does wonders, and in a few days the old man begins to bud, the white is really turning black, the red is merging into the blue, and by degrees the long-looked-for sable hue appears, and all is serenity and joy.

"Those reverend locks
In comelye curles did wave;
And on his aged temples grewe
The blossoms of the grave,"*

—are all gone.

The dial is put back, and Œson, like the octogenarian, finds himself only forty. But, alas ! this glory is but short-lived. In a few weeks the ugly gravestones will reappear, again to be painted over, and written upon, "Lies." Oh, when will the human learn that there is as much beauty in the autumnal tint as in the vernal beauty ! A charming mellowed hue hovers around the sunset of life, like the white mist upon the Alpine peak. Nature, sterling silver, and the aged

* Percy's "Reliques," vol. ii. p. 162.

brow, patriarchial in its grandeur, like the mountain, stands up with true nobility, and feels at home in the great world.

Chemistry comes to the aid of the unsatisfied, and, like the charlatan at a country fair, proclaims aloud, "What lack ye? What lack ye?" With its talismanic touch it can give any colour that its votaries require, and like the showman on the village green, in reply to the urchin's question, says: "You pays your money and you takes your choice." "I'll have black," exclaims a blonde beauty, whose curling hair was of such a brown as the unsunned side of the ripe hazel-nut. Soot mixed with grease will make

"Hair as black
And full of dust as any collier's sack." *

This was used by the early Greeks. Afterwards they used vegetable decoctions, gall-nut solution, and iron. Aristophanes informs us that the dye which Lysicrates used was "boiled in a pot." The Egyptians in later days used ink, and the Europeans in our time walnut-juice and nitrate of silver.

The objection to the nitrate of silver dye is this—that it stains the skin as well as the hair, and everything it touches. But if applied by skilful hands it would be oftener used, for it is more rapid in its action than the salts of lead. Hair washed thoroughly clean and dried, then moistened with a solution of lunar caustic, would become black by exposure to sunlight at once. Diffused daylight prolongs the

* Browne.

change for some hours, unless some mordant be used, such as a weak solution of hydrosulphuret of ammonium or sulphuret of potassium. After a few moments the change takes place, and the cranial covering may be washed and dried. But hair will grow upon the aged as well as upon the young, and silently the white crops up from the base, and reveals the need for constant dyeing.

The best instantaneous dye is one composed of iron, used largely in England by the hairdressers—I mean Batchelor's Hair Dye. It is the most permanent and the least poisonous of the dyes examined; but this requires skill in its application, for it will discolour fingers as well as filaments.

The common hair cosmetics of the present day contain lead. The following is a rough analysis of the more noted :—

Mrs. S. A. Allen's World's Hair Restorer, acetate of lead, sulphur, and glycerine.

Rossetter's Hair Restorer, ditto.

Simeon's American Hair Restorer, ditto.

Hall's Vegetable Sicilian Hair Renewer, ditto.

Agua Amarella, ditto.

Helmsley's Celebrated Hair Restorer, ditto.

Melmoth's Oxford Hair Restorer, ditto.

Alexander Ross's Great Hair Restorer, oxide of lead, carbonate of lead, and potash.

The quantity of lead in any of these could not possibly do harm. The strongest contained but ninety grains to the half-pint of water, the weakest only three grains to a like bulk. Water was the chief ingredient of them all. Sulphur, sometimes in the

form of milk of sulphur, was used; in another, the common flower of sulphur; sometimes acetate of lead, at other times oxide of that metal. In all, the chemical change is the same, namely, the solution of the metal entering into the filament by absorption, there unites with sulphur, forming a sulphuret of the material used. Hair is porous; sulphur exists in hair of all colours, but is in excess in red and blonde hair. This is why these hues become blackened by the chemicals used more perfectly than any other shades.

Now, the question has been asked oftentimes, whether the use of lead solutions as hair dyes be prejudicial to health or no?

As this is a question of much importance, we will look carefully into this matter.

The absorbent power of the skin is not great without we remove its outer covering. If we desire to get remedies absorbed into the system, we first blister the surface, remove the outer covering, then sprinkle our drugs upon the derma, and the material then goes into the body. In the endermic method of giving medicines, we must perforate the skin to produce any effect. The cuticle is the protecting agent—one of Dame Nature's waterproof coverings, to keep out external poisons.

Dr. Southwood Smith stated: "Over the external surface of the body, or the skin, there is spread a thin layer of solid, inorganic, insensible matter, like a varnish of india-rubber. The obvious effect of such a barrier placed between the external surface of the body and external objects is to moderate the entrance of substances from without. Hence the impunity with

which the most deadly poisons may remain in contact with the skin; with which prussic acid, arsenic, corrosive sublimate, may be touched and handled."*

Mr. Erasmus Wilson writes: "The epidermis acts as an impediment to absorption, and as such is an important safeguard against the admission of injurious and poisonous substances into the blood. Thus we find that it is only after long soaking, or by continued friction, that we are enabled to overcome this natural defence, and *then only to a very partial extent.*"

Now, the skin of the head is additionally protected by an oily solution—the sebaceous secretion—which forbids entirely the absorption of any watery hair-dye. So protected with Nature's waterproof cape and oiled epidermis, it is impossible for an aqueous solution to enter the body and destroy life. I have carefully analysed the cases recorded, in which lead cosmetics are said to have caused death. Almost all the cases occurred in France, and lead, in an ointment, had been used. Now, an unguent could easily be absorbed by an oily skin, therefore these accidents are at least probable. The watery solutions of lead for the last ten years have been used largely by thousands and tens of thousands of beings in our land, yet not one single case has been recorded of poisoning from their use. Surely amongst the wise sensational writers of our time, who write so freely upon poisoned stockings and impregnated umbrellas, if any cases occurred, they would be brought out into the light of

* "Philosophy of Health," p. 268.

day, and become magnified, like the gregarines, into something tangible and capable of proof. I have seen patients who have used lead dyes for twenty years, but not a single sign of lead poisoning has been revealed.

The next question is, Is lead such a deadly poison as some writers would affirm? Decidedly not. How many hundreds of old women are there who for years have constantly put sugar of lead upon their ulcerated legs, and even with this wounded surface we never see cases of lead poisoning. "Thirty and forty grains of the acetate of lead have been given daily, in divided doses, without injury."* One ounce has been taken internally, and the patient has recovered. Now, in the strongest hair-dye that I have examined, there has been but one quarter of an ounce in a half-pint bottle of water, which would last the patient at least a month. Putting all these things together, one can state *that the hair-dyes, as used in England at the present day, cannot prove injurious to the users.*

Another dye has been found out by accident. Dr. M'Call Anderson had a case of eczema marginatum under treatment, and a lotion of bichloride of mercury had been used. The hair, which was red, became saturated with the solution. After a few weeks the application was changed to a lotion of hyposulphite of soda, and at once the auburn locks became black. The advantage of this dye is that it does not stain the skin or the clothes. If the theory of absorption exist,

* Dr. Taylor's "Medical Jurisprudence," page 102.

then this is a much more dangerous hair-dye than the lead; but if, as we believe, no aqueous solution can enter the pores of the scalp, then this is a safe remedy. I have experimented upon it, and found it successful. The formula that I have used has been the following:— Dissolve ten grains of bichloride of mercury in three ounces of rose water; dip a brush in this solution, and apply it twice a day to the hair for a week. The head should previously be washed in weak soda and water, and dried. The mordant should be used in the same way, but not with the same brush, for a day or two, and a black colour will be produced. The mordant is made by dissolving an ounce of hyposulphite of soda in two ounces of water.

In India, the Mussulmen are fond of dyeing their hair with oxide of iron. They blacken their eyelashes with black sulphurets of lead and antimony. Their common dye, however, is made from the henna, or Egyptian privet (*Lawsonia inermis*), the same with which the Turkish damsels stain their finger-nails. This is applied in the form of paste, and well rubbed into the roots of the hair. It is then allowed to remain upon the scalp for an hour, when it is washed off. The hair is then bright red. After this another paste is prepared with water and the indigo plant (*Indigofera anil*), mixed well together, and then applied to the comate covering for three hours. It is then washed off, the hair dried, and well oiled. Its lustre and blackness is not to be surpassed.

The Sikhs never dye their hair, for that process is forbidden by their creed, but they wash their long black flowing hair with curds.

The Romans used putrefied leeches, steeped in wine and vinegar, to dye their hair black.

"Oh! for the golden tint of Dido," exclaims a dark maiden; what would I give to be a blonde!" to have "threads of purest gold;" to be

> "A beauty ripe as harvest,
> Whose skin is whiter than a swan all over,
> Than silver, snow, or lilies."—*Ben Jonson.*

Yes! chemistry can bleach the hair, but not the skin. The rich dark nut-brown colour of the brunette cannot be etiolated save by death.

We have no rivers Crathis or Sybaris, where the black-haired can wash away the pigment, and leave amber tresses behind. But soda and water and sunshine will do something, bicarbonate of potash will do more, and nitro-muriatic acid will blanch the dark deposit, and leave a blonde behind.

The Greeks prized light hair, and some possessed the golden hue. The beautiful Helen, the cause of the Trojan war, the goddess Ceres, and the lovely Ariadne, had sunny tresses. Most of the Homeric heroes had been kissed by the sunset, which had left some of its heavenly gold behind—

> "She stood behind, and took
> Achilles by the yellow curls."—*Homer.*

The Romans gloried in the same tint. The Pyrrha of Horace, the Bernice of Catullus, and the Cynthia of Propertius were ornate with "yellow crowns." When Nature denied them this boon they shaved off their tresses, and substituted artificial locks, rather than

be out of the fashion. Well might Martial sing—

"The golden hair that Gallas wears,
Is hers, who would have thought it?
She swears 'tis hers, and true she swears,
For I know where she bought it."

The Roman ladies used soap to lighten their dark tresses. These were designated "Mattiac balls," because they came from Mattium, a town in Germany. They were composed of goat's fat and ashes. Martial sent some to a bald octogenarian to change the colour of his hair.

Ovid makes a pathetic appeal to his mistress :—

"I always used to say, 'Do leave off doctoring your hair;' and now you have no hair left that you can be dyeing. It used to reach to your ankles. Was it not so fine that you were afraid to dress it; just like the veils which the swarthy Seres use, or like the thread which the spider draws out with its slender legs? . . . And yet its colour was not black, nor was it golden, but though it was neither, it was a mixture of them both. A colour such as the tall cedar has in the moist valleys of craggy Ida, when its bark is stript off."

Then he adds: "Your own hand has been the cause of the loss you deplore. You poured the poison on your own head." *

The golden hue was first used by Solomon, who, Josephus informs us, had the hair of his pages powdered with gold. Poppœa, the wife of Nero, who had a bath of asses' milk daily, used auriferous dust to her locks. Lucius Verus did the same, and in the six-

* Elegy xiv.

teenth century the beauties of Venice stained and gilded their locks so that they might be unlike their compeers.

The Countess Nahani gave a recipe for dyeing the "golden thread hair" (capelli fila d'oro). It consisted of alum, black sulphur, and honey, diluted with water. The patrician ladies repaired to the tops of their houses, soaked their locks in this precious distillation, put on a broad-brimmed straw hat, *minus* the crown, and there sat like statues in the broiling sun until the tresses imbibed some of its beams.

In our own day the maidens wash their locks in soda or potash water, and walk about in the sun till dry. Or they have recourse to some stronger bleaching material, such as chloride of lime or sulphurous acid. Soap and water and sunbeams will do a great deal to lighten hair, but the craving for the golden hue, or "threads of purest gold," has led many to use the tersulphuret of arsenic dissolved in ammonia. This is a dangerous plaything, and should be kept only in chemists' shops.

A solution of bichloride of tin, with a mordant of hydro-sulphuret of ammonia, gives a rich golden tint to light hair, and an autumnal brown to dark hair.

Acetate and nitrate of lead, with a mordant of chromate of potash, gives a yellow hue. A solution of sulphate of copper, sixty grains to one ounce of water, well applied to the hair, and an hour after the same quantity of ferro-cyanide of potassium in water, to be used, will dye light hair a rich golden brown. I have used it to the white tail of a chestnut horse, and one application has lasted good for a year. Peroxide

of hydrogen has been recommended for bleaching the hair, but it has entirely failed in my hands. The nitro-muriatic acid diluted is the chief material now used. Auricomus, or golden fluid, Robare's Aureoline, Ross's Sol Aurine, Nicholl's Golden Tincture, all consist of this acid in various proportions. This is the least destructive of all the dyes, and does but little if any harm to the cranial covering.

Ah! says another, "I'll be like Mary of Scotland, who, though she had exquisite hair of her own, like a sensible being she wore red fronts. So will I." Well, young lady, to dye hair red is no difficulty if you can only get the drug. The Turkish ladies stain their nails daily with this precious henna. All through the East, from the Mediterranean to the Ganges, this plant is the beau ideal of all that is lovely. In northern Africa the fair sex will sing of its charms, and the disentombed mummies from Thebes join in chorus, at the talismanic touch of this herb. Solomon sang of its glories in these words: "My beloved is unto me as a cluster of camphire in the vineyards of Engedi."*

Now this henna, used by the Egyptians, then by the Hebrews, and called *kopher*, imitated by the ancient Greeks under the name *kupros*, and termed by the modern Grecians *schenna*, is a fragrant plant which grows luxuriantly in Egypt, India, Syria, Persia, and Kurdistan. Its flowers emit a very pleasant aroma, and are worn in chaplets round the head and neck. Its leaves are used to stain the palm of the hands and the fingers, both of the living and the departed. The ancient Egyptians spent their all upon

* Song of Solomon i. 14.

decorating their dead, the modern Egyptians to beautifying the living. The Buddhists offer bunches of these flowers as offerings to their deities. This henna, or *Lawsonia inmis*, *Lawsonia spinosa* of Linnæus, grows abundantly at Lahore, and all over the East. It is the Egyptian privet, the *henné épineux* of the French, the *gehenna alkan dorn* of the German, the *kyna hina* of the Turks, the *(k)henna urkan* of the Arab, the *henna* of the Persian, and the *mendee mayndie* of the Indian and Cashmere beauties. In fact, it is to the East what the rose is to the West. The beau monde of Belgravia use the rose-leaf powder for their complexions, the otto for their pomades, the water for laving their hands, and the infusion for medicine. The flower adorns their hair, the bud is the song of their poets. So the Eastern maiden sings of her "sweet-smelling Cyprus." She takes the leaves of her favourite, and steeps them in the juice of citrons, and on every gala day she anoints her hair and her nails with the fragrant perfume. The red blush is upon her fingers, the ruby tint upon her toes, and melody is in her heart wherever she goes.

The leaves of the henna are made into a paste with water, and plastered upon the head. An oilskin cap is then placed over all, and in half an hour the locks blush with a ruby tint. The material is washed off, the hair brushed, dried, and oiled.

The Teutons prized red hair, and used a pomatum of tallow and cinders to obtain this colour. Pliny gives us the receipt for the same.

Diodorus Siculus informs us that the ancient Britons, who by nature had red hair, prized the colour so much

that they brightened its hue by washing their hair with lime and water. Not so the Turks, for in olden times they would seize the poor red-haired man, tie him up by his heels to a tree, and then coolly collect the foam from his turgid and dying lips, affirming that the secretion was the most virulent poison in existence. So we find from Esau down to the Dinkas in Central Africa, that there are some who glory in the crimson hue, and even produce it by dyeing it, rather than go without the precious colour.

A dye can be made by taking ten grains of bichloride of mercury, dissolving it in one ounce of distilled water, and brushing it through the hair daily for a week. Then a solution of sulphide of ammonium should be used, and a bright red will be the result; in fact, vermilion is chemically produced. In using this take care of the skin, for the mercurial solution may blister the tender cuticle if great care be not used.

Twenty or thirty drops of bronzonette, mixed with one or two teaspoonfuls of spirits of wine, will dye the hair of a crimson hue; and this may be improved if at any time the colour should fade, by moistening the hair-brush with spirits of wine, and passing it through the hair briskly.

Thus we find that chemistry has advanced to meet the wants and follies of the fair sex, of those who wish to imitate Cleopatra in the colour of their tresses, or to outvie the Venetian ladies in culling sunbeams to put into their hair. It speaks thus to the man who is ashamed of Nature's gifts, and who longs to exchange his blue eyes and blonde hair for the colour of the chimney, "You can have what you like!"

CHAPTER XX.

THE BEARD.

The beard, called in the Latin tongue *barba*, in the French *barbe*, in the German *bart*, and in the Dutch *baard*, gave the name *barber* to that class of men now living who dress and cut the hair, and shave the chin.

Beards are of great antiquity. The Hebrews wore them, and were forbidden by law to round off the corners of this appendage. The Nazarites never touched the razor, but allowed Nature's covering to grow in full luxuriance, unchecked by scissors or knife. In the Mishna it is directed that "he who would conduct public worship in a synagogue should not necessarily be a sage, but one present in the congregation who is apt to officiate, who has children, whose family are free from vice, who has a *proper beard*, whose garments are decent, who is acceptable to the people, who has a good and amiable voice."

In sorrow the beard was left untrimmed. Mephibosheth, the son of Saul, dressed not his beard till David came in peace. None but a person bereft of reason would allow saliva to rest upon his comate treasure. Hence, when David feigned himself mad

before the king of Gath, and was desirous to show how thoroughly lunatic he was, bereft of all self-respect, he let his spittle fall upon his beard.

Wars, many and bloody, have been caused by an insult to the beard. David sent his messengers to Hanun, king of the children of Ammon. He cut off the half of their beards, and sent them back to the Jewish king. For this insult war was declared, and the Ammonites slain.

Even in the year 1764 Kerim Khan sent to demand payment of the tribute due for his possessions in Kermiser; but Mir Mahenna maltreated the officer sent by cutting off his beard. For this insult Kerim Khan sent a strong army, and conquered all his opponent's territories.

To an Eastern the most terrible calamity that can happen to him is to lose his beard. How terrible must the denunciation have sounded to the Jews, when Isaiah lifted up his voice, and in plaintive accents declared that a huge thunder-cloud of sorrow was hanging over their heads :—

"He is gone up to Bajith and to Dibon, the high places, to weep. Moab shall howl over Nebo and over Medeba; on all their heads shall be baldness, and every beard cut off."*

Of late years a Mahomedan at Basra, in a fit of intoxication, removed all his beard. When he came to his senses he had to flee to India for refuge, not daring to return to his home, for fear of public scorn and judicial punishment. An Englishman, *sine barba*,

* Isaiah xv. 2.

was travelling in the mountains of Yemen, and found that the people avoided him as if he had been a leper. On inquiry, the inhabitants said that they feared he had committed some fearful crime because his beard was cut off.

The Greek philosophers wore beards. Persius applies the term *magister barbatus* to Socrates. Diogenes used to ask the smooth-faced Greeks if they repented of their manhood. The Homeric heroes were bearded men. The Athenian women tried to grow what Nature had denied them. Suidas asserts that even false beards were more than once in vogue amongst these ladies. The Cyprian Venus wore a beard. The ancients believed that Jupiter denied this crowning grace to women, lest by possessing *all* other charms she should draw to herself the adoration due to the gods alone.

The Greeks wore beards till the time of Alexander the Great, and the first man who was shaven bore the name ever after—*korsen*, shaven. Plutarch relates that the reason for shaving was that they might not be pulled by the beard in battle. Epicrates had such a huge hair production that Plato, the comic poet, nicknamed him Sakosphoros. When a change came over the fashion the young Athenian swells began first to clip their treasured ornament, and then gained courage at last to use the razor.

Alciphron gives us a view of the philosopher's beards. He represents Eteocles, the Stoic, with his long beard and forehead of wrinkled leather; Themistagoras, the Peripatetic, with a grey curling beard; Zenocrates, the Epicurean, with a venerable beard;

and Archibius, the Pythagorean, with his pale face surrounded with locks, which hung in clusters upon his breast, and with a long pointed beard.

Fashions will change, and while the Athenian youths were twisting their moustaches and chatting in the market-places, the Spartan Ephori were making proclamations against these hirsute intruders. An order came out from their august assembly requiring all people "to shave their moustaches and obey the laws."

The Romans wore beards till B.C. 300, when P. Ticinius Mœnas brought over a barber from Sicily. Scipio Africanus shaved every day, and thus changed the fashion. The young Roman, who once had rubbed his chin daily with lamp oil, or had spent his money to obtain the precious spikenard to get the much cherished beard, now anointed his locks instead of his chin. The first shaving in a youth was a time of merriment and congratulation. It was the outward sign that the boy had left his playthings behind him, and had become a responsible citizen. He then put on the toga virilis, shaved his beard, and consecrated the first cuttings to some deity. Nero put his hairy fragments into a golden box set with pearls, and dedicated it to Jupiter Capitolinus. Statius mentions that one grandee sent his early bristles to Æsculapius, and requested Statius to write some dedicatory verses upon the occasion. These were sent in a jewelled casket, enclosing a mirror. Trimalchio's beard was encased in gold, but his shaven pate poked out of a gorgeous scarlet mantle. Even slaves dedicated their first cuttings to some deity.

The beard has suffered many vicissitudes since this time. Perfumed by one nation, hated by another, the Orientals believed that a great man could not exist upon the earth without a beard. A tree would sooner live without leaves than a great mind without this appendage. The Lombards, or Longo-bards, or long-bearded men, derived their name from their disuse of the razor. Alcides' beard swept the ground. King Robert of France possessed one of the longest white beards of his day; but John the Bearded tucked his into his girdle, to keep it from trailing upon the ground. Julian had a long beard, and was much ridiculed at the court of Constantine; the courtiers called him a *goat*, and an ape, and retreated from him disgusted. When he was at Antioch the people reviled him on account "of his short stature, his long strides in walking, and his *bushy populous beard.*" They told him that he longed to be thought a philosopher. Julian took his revenge by writing a satire upon the people, which he named "*Misopogon, or Beard-hater,*" and then left the city in disgust. Soon after he assumed the imperial purple, and all were as silent upon the beard subject as the grave.

Dionysius the elder, the tyrant of Syracuse, who wrote bad verses, listened at doors, peeped into keyholes, and dealt largely in lies, was so afraid of a barber that he burnt away his beard with hot walnut-shells.

The Chinese hero "Yang" had a wonderful growth from his chin. He was sent against the Khachghar. Before he went into battle he tied up his beard into

great knots, in order that it might not get under his feet. He then placed himself in true Chinese fashion behind his troops. Then, armed with a long sabre, he drove his soldiers to the combat, and massacred without pity those who were cowards enough to draw back.

Peter the Great commenced the civilization of his people by cutting off their beards. But Peter had not Guillaume Duprat to deal with. This noble man returned from the Council of Trent to the bishopric of Clermont with his treasured beard reaching to his girdle. Great was his surprise to meet at the door of the church the Dean of the Chapter, with a host of followers. In the Dean's hands a large pair of scissors glistened in the sun. Duprat found that there was but one alternative, so he threw off his surplice, and declared that he would rather forfeit the bishopric than his beard. And so he did, brave man! He kept the beard, and lost the benefice. Sir Thomas More loved his beard. Even when upon the scaffold, his head upon the block, and just about to leave this world, he forgot not the hairy covering that had nestled so closely to his heart, and taking it up carefully and laying it upon one side, exclaimed: "My beard has not been guilty of treason. It would be an injustice to punish it."

The beard has become liable to vicissitudes in every age, from the time the monster Polyphemus cut his shaggy production with a sickle, down to the moment that Don Quixote told Sancho that he should shave at least every other day if he wished to look like a

gentleman. In the Church and at the Bar, legal enactments concerning the beard have been made, like the sumptuary laws of Venice and Pisa, where the senate, like the Athenians of old, had to regulate the length and quality of the ladies' dresses, and the decorations and colours of their gondolas. So the poor beard has had to be caressed in one generation and cursed in the next. Godefroi, bishop of Amiens, refused the offerings of anyone who wore a beard, and Gregory IV. fulminated a bull, enjoining heavy penalties upon every barbate priest. In the thirteenth century the beard began again to look up, for Pope Honorius III. had a scar in his lip, which the vanity of the man tried to hide. So the scolded, sinful, hairy filament was allowed to hang down from the face like a banner disgraced. But soon it became fashionable. We cannot enter into the various fashions and shapes which the beard has assumed, or relate the signs of mourning which its removal or neglect exhibited amongst various nations.

It has been a question whether a man should or should not shave his beard. Doctors have agreed and disagreed upon this subject. Some believe it to be Nature's respirator; others, a human dust-heap of sloth. Some think a man looks more like a god with this appendage; others, that he appears more like an ass or an untamed goat. The Greeks had a saying, that "A long beard does not make a philosopher," and some of the English think that only foolosophers wear it. If the extent of knowledge, like the strength in Samson's locks, resided in the hair of the chin, we

should indeed have wise men in the present day. One is sometimes inclined to gaze upon the wearer of a ponderous beard and exclaim, "Is that a man and a brother?" If anyone be inclined to adopt Darwin's views, he has only to look around upon a company of bearded men, and he will soon see likenesses of the lower animals, the like of which the Zoological Gardens only can produce.

But we must do justice to this beard, and acknowledge that Nature must have had an object in placing it upon the face. All that is formed has a use, from the spider that spins its web, to the satellites that bask in space. We quite rejoice at the answer given by Duc de Sully to the insolent courtiers of the smooth-faced Louis XIII.: "God put the beard, and He only shall grasp it off."

In considering this hirsute appendage, we must inquire upon what does its growth depend? It is essentially a sexual characteristic. Eunuchs do not grow beards. Women who have lost their ovaries, either from operation, disease, or degeneration of structure, begin to grow beards. In the lower animals we constantly find that the female often assumes the colour of the male, as the reproductive organs die out. In birds this is very common. In the human female the unnatural growth is continually associated with incurable sterility. In man its advent begins with puberty. There is a close connection between the growth upon the chin and the failure upon the head. We continually find bald men have the finest beards, and we think that Zoilus was not quite so foolish as his generation

thought him, for Ælian tells us that he shaved his head in order to nourish the growth of his beard. The Greeks believed in beards for the aged. We find them representing their gods and heroes, only in advanced life, with beards. Thus in the British Museum we have three busts of Bacchus, one in youth, another in the prime of life, both *sine barba*, but the third in old age, with a copious flow of hirsute material from the upper lip and chin. Now this, I believe, is the true use of the beard—a blossom of old age, an ornament for the tomb. If it be a protection, why should men have it more than women? Are they more tender than the weaker sex, or are they more exposed to the vicissitudes of atmospheric influences? These are questions that crop up and puzzle one. In the present state of our knowledge or ignorance, one should say that we know nothing of the function or use of the beard. We do know this, that a larger supply of blood goes to the chin in the male than in the female, and with it the same proneness to disease. As females get cancer in the breast, so the male is more prone to epithelioma of the lower lip. In women the percentage of cancer of the breast is very large. Out of 6,076 cases at the Cancer Hospital amongst females, 4,381 were in the breast. Only five out of this large number were in the lips. Now, with men, the reverse—out of 1,370 cases in the male department, 580 were in the face and lip.

From this we see that man has to pay penalties for his beard. These all come in the decline of life, when the hairy growth is failing in the head, and flourishing

in the beard. We do not believe Byron when he sings :—

> "That ever since the fall, man for his sin
> Has had a beard entailed upon his chin."

We do believe that a beard is an outward and visible sign of a lower mental organization, that the animal tendency is painted with excess of hair, whilst the higher faculties of man's being live in the beardless, hairless men of creation. Not that clever men are bereft of beards, far otherwise; for some of our greatest writers are muffled in hair; but I do say that our mightiest thinkers have been smooth-faced and as hairless as the dome of St. Paul's. Whether we behold the boy-faced Byron, the beardlessMilton, or the learned Thiers, we see the Dante-like hairless countenance. Johnson, Burke, Sheridan, and Goldsmith were as hairless as girls.

The filaments of hair in the beard are three or four times as large as those of the head. They also possess a distinct medulla, therefore it takes a much larger amount of hair-forming material to produce a single tube upon the beard than it does upon the head. Upon the chin the hair is tubular, very coarse and wiry. Those who are losing their comate cranial covering early in life will do well to keep their beards closely shaven, and, like Zoilus, they will find their roofing improved. It is impossible for weak men to grow both. It must be *plus* beard *minus* head, or *vice versâ*. But when the hirsute glory has departed from the crown, then the man may grow his beard with impunity. And the garden that will not grow

hair may be left, like Æschylus' of old, a polished pebble for the eagles to crack their tortoises upon, whilst the beard may be caressed and fondled to the heart's desire.

Sycosis and impetigo are diseases that attack the beard, and commit serious ravages amongst the hairs. Tinea decalvans sometimes takes a promenade from the scalp to the chin, and destroys the hair plantation.

The votaries of the beard rest their most cogent argument upon the medical aspect of this appendage. They say that it is a protective agent, keeping cold from the throat, and dust from the lungs. Strange that in other parts of the body the hair grows more luxuriantly where there are no vital parts to protect! In the armpit and the pubes hair always grows both in the male and the female, yet there is nothing underneath to take care of. Upon the heart and lungs, and over the liver, no hair grows; so the shielding theory vanishes.

Next in the list is the ornamental aspect. The beauty of the human over the lower animals is the power of expression. The smile that rests upon the lip, like the ripple upon the blue lagoon, or the sneer that mars the symmetry, like the foam upon the wave, both are hidden by the comate veil.

As all sins leave their impress upon the face, it is better that the vile and the debased, the debauched and the deluded, should cover up with Nature's foliage the wrinkle and the scar that their iniquities have furrowed. Grass grows upon our graves, and strives to hide the fall.

The natural argument is the most potent: "God put it there, why remove it?" The whole of our body, save the palms of the hands and the soles of the feet, are covered with the same material. Why have we not beards upon our toes? The reason, I believe is, that upon the chin the male has cultivated it. Hereditary tendency has handed down to us the beard, as it has done our physiognomies and our diseases. The young man arrives at puberty, and he expects his hairy ornament. How patiently he strokes his chin day by day! how constantly does he watch the embryo hair! No sooner does it appear through the skin than razor and unguent, spirit and attention are poured upon it, and as thought draws an increased flow of blood to any part, so the beard gets more than its share. One of our great physiologists said that he could produce an attack of gout by gazing upon his great toe for half a day. True it is that thought can do such things. We behold it in the flow of tears, and in the accession of saliva in the mouth, by gazing upon fruit in the latter case, and by receiving sad news in the former. The flush upon the bashful cheek, and the current of blood towards the mother's breast, all tell the same tale. Take the Grecian or Roman youth, and see how the first cuttings of the beard were treasured, when the toga was put on. How in our days the youth talk of rubbing the chin with the cat's tail, or drawing out the latent hairs by means of a rotten cheese poultice! Youth anxiously looks for the beard, and the hairs appear.

In all ranks of society the beard is now tolerated. A man is no longer called an "animated door-mat" for

wearing one. He may boast of a beard as big as Holofernes, or glory in a scrubbing-brush attached to his face. The smallest men have the largest beards, and small boys dare not laugh at the frights we see in our streets. Priests and policemen, solicitors and surgeons, adopt the crinatory appendage ; in fact, all men wear it, save the waiter and the warrior ; these, like the slaves of Rome, must not yet do as their masters.

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