

aggravates the head symptoms in typhus fever, although the bleeding from the nose appears to be a hint from nature to do so. Expectoration is one of the best and surest symptoms of recovery.

The following case was, perhaps, one of the severest we had to deal with. He is still in the hospital in a weakly state.

John Calaghan, aged 39; a tall, thin, rather emaciated man, who was well known as a hard living fellow, was admitted to the hospital on the 23rd of April, 1838, with the symptoms above described, in the first stage of fever; was purged with calomel previous to his admission to the hospital.

Calomel, gr. x.; *Lemonade*.

24, morning. Head symptoms commenced; tongue dry; skin tinged yellow. *Pil. hydrarg.* gr. v., night and morning.

25. Blister to the back of the neck; cold affusions to head. *Blue pill*, gr. v., night and morning.

26. Pulse small, hard, frequent, and incompressible.

Blue pill, gr. iij.;

Extract of colocynth, gr. v., immediately; *Lemonade*.

27. Head symptoms better; tongue dry, black, and chapped; pulse unaltered. *Calomel*, gr. v., night and morning.

28. Head considerably affected, talking at times incoherently; pulse small, quick, and irritable; tongue dry, and covered with a dark brown crust; bowels not opened. Purgative enema; *calomel*, gr. vi.

29. Passed a restless night; very incoherent; considerably depressed; pulse quick, feeble, and intermittent; tongue as yesterday, with total incapacity of protruding it; countenance dejected; bowels not acted on by the enema. Repeat enema at once. Half an ounce of sherry every two hours.

29, evening. No improvement; twitching of the tendons, with slight hiccough. Enema acted.

Blue pill, gr. v.;

Opium, gr. i., at once. An ounce of sherry every three hours, with effervescing draught every four hours.

30, morning. Passed a quiet night; some slight improvement; pulse fuller and more regular; tongue still dry, and coated; bowels open; hiccough not so troublesome.

Blue pill, gr. v.;

Opium, gr. i. Sherry as yesterday.

30, evening. Continues better. Repeat medicine and wine.

May 1. Pulse full and laboured; tongue more moist, and able to protrude it; bowels open; no hiccough, or twitching; perfectly rational, and able to raise himself in bed, to get drink. Effervescing draught every three hours; half an ounce of sherry every hour.

Blue pill, gr. v.

2. Mouth affected by mercury; pulse

full, laboured, and slow; complains of excessive debility. An ounce of sherry every hour. Wished for milk, and was allowed it.

3. In the same state; allowed chicken broth. Wine continued.

4. Convalescent; copious expectoration. This patient's skin was tinged a very deep yellow.

Trusting that the above account will fill up a vacancy in your valuable periodical, I have the honour to be, Sir, your obedient servant,

WILLIAM LARDNER,
Surgeon to the British Auxiliary
Brigade.

San Sebastian, June 1, 1838.

MEMOIR ON THE STRUCTURE

OF THE

NEGRO'S SKIN.

BY

W. JUDD, M.R.C.S., and Surgeon in the Guards.

Discoveries connected with the reproduction of the colouring matter in the skin of the African Negro. The spontaneous disappearance, in patches, of colouring matter; and a similar matter found in some parts of the European. On the structure and use of the perspirative, or epidermoid, glands. On deciduous hair, with a description of its sacculi; and on permanent hair, its bulbs, and glands.

To the Editor of THE LANCET.

SIR:—Observing in your useful Journal two lectures* by Dr. Wallace, of Dublin, on the structure and diseases of the skin, I am happy to find that that gentleman has repeated and made known to the Irish public the results of some experiments, similar to a long series made by me in London, during 1834 and 5, the greater part of which were published in a chapter on the "Dermoid Coverings," in my Treatise on Syphilis, in the year 1836. Considering the extreme difficulty of such minute investigations, I regard it as very satisfactory that he should (with few exceptions) have arrived at the same conclusions as myself. During some years past I have made various attempts to examine into the nature of the colouring matter in the skin of the African negro, and its mode of reproduction; and now that the attention of the profession is again drawn to this interesting subject, perhaps the following short notes, containing two or three recent discoveries, may not prove unacceptable to your readers.

I.—On the reproduction of colour in the skin of the African negro.

—ætat. 50, a curly-headed negro, of African origin, with black hair, and a skin

* Only two lectures had appeared, in November, when this paper was begun.

almost the colour of fresh roasted coffee, had a blister applied to him during 24 hours.

On the 2nd day afterwards several inches of brown cuticle were stripped from the vesicated surface, and two irregular pieces of rete mucosum came away with it.

3d day. The portions of cutis-vera recently denuded (of rete) are as fair as that of any European, but the greater part of the vesicated surface still retains its dark colour. A discharge of glutinous serum has commenced for the purpose of reparation.

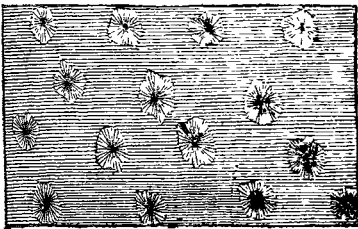
5th day. The quantity of serum discharged, and the irritation induced, are greater than commonly met with after a similar application to the white person.

6th day. The portion of cutis-vera denuded is of a bright rose colour, but part of the discharge seems to be changed from serum to pus.

8th day. Several small brownish-black dots (visible through a compound lens) each about the size of a needle-point, have been observed, at almost equal distances apart, in the cutis.

10th day. The brownish-black dots have increased in size, and are situated in pits close to the angles of the lines that form the patterns in the skin.

Fig. 1.



14th day. The dots become darker and larger, are still extending, and seem to diffuse a brownish colour beyond their precincts.

16th day. The dark-brown colour has diffused itself over a larger circumference from the central dark dots in the cutis, and is encroaching upon and lessening the denuded rose-coloured surfaces.

19th day. The parts occupied by the black dots have become almost as dark as themselves, whilst the colouring matter lies in brown zones around them, and is lighter the further it is from their centres. A brown deposition is observed about a leash of vessels at the inner part of the white tunica conjunctiva of his eyes. This is common amongst blacks, and is almost similar in colour to their rete mucosum and dark irides.

23rd day. The newly-formed brown colour now hides a larger portion of the lately denuded cutis than the ulcerated patches, which remain white, although covered by new cuticle. The brown colouring matter encroaches on, and has tinged a still larger portion of the angles of each lozenge of skin in their vicinity.

24th day. Doubtless these are the spots in which the progress of secreting the colouring matter to the mucus of the rete goes on; for now the parts in their vicinity have become darker than the original, and more than two-thirds of the whole denuded surface around them have been restored nearly to its proper depth of colour.

28th day. The tint has gone on spreading from the angles of the patterns and pits until most of the newly-formed surface has been coloured, save where these parts, as well as the rete, had been destroyed by ulceration penetrating the cutis; in the latter they remain white, except as far as they are sprinkled by a coloured dot or two, which had escaped destruction.

40th day. The blackish-brown colour, in the part lately blistered, becomes still more intense.

47th day. The newly-formed rete is now within a shade as dark as the rest of his skin; the colour-secreting parts are seen in it like dots of jet. The two patches still remain white; and although there is, as before stated, a black dot or two in them, no colouring matter appears to spread from thence to restore the original tint to the lately ulcerated parts of the cutis vera.

A preparation of the part whence this description has been written is reserved for the inspection of my physiological friends. They will observe that I have separated a portion of the newly-formed cuticle and rete from the cutis, at the place lately blistered, and, on reflecting them, have found the regenerated cuticle a continuous and perfect membrane, but the rete imperfect, as it had only been reproduced in parts where its colouring matter lay in circles and many lines. This colouring evidently was composed in largest quantity of round, white, glandular bodies, in pits, near the angles formed by lines in the skin, but so thinly spread under the latter as to leave them nearly white, although it was plentiful on each side of their attachments. The cutis itself was found colourless as usual, except, indeed, near its boundary, and there some of the pits had a defined brown tinge, and in them there remained either undetached white glands, or remnants of adherent rete mucosum.

I shall next give some account of a *lusus naturæ* that came under my observation about a year since, being of a kind closely connected with this part of physiology.

II.—On a spontaneous absorption of colour in patches from the skin of the African.

—ætat. 47 On the black skin of this negro I chanced to observe a round white spot, which excited my curiosity, and, on inquiring into its history, I was shown several others, in various parts of his person. He stated, that being in bad health, twelve months ago, the white spots appeared

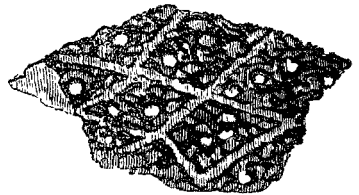
slowly one after another, then gradually increased to this present size, and since have remained stationary. These spots vary in diameter from the size of a shilling to that of a crown-piece; they are level with the surrounding black surface; the white portions of cuticle covering them, retain their original lines and structure; they are smooth, not unusually glossy, and have all the appearance of being perfect and healthy. He has neither had ulceration, eruption, nor any external cause to account for the curious change; and I cannot doubt the truth of their history, as given by this artless man. I made a preparation of one of them, which is also in my possession. This white spot measured eighteen lines across, being surrounded by as dark a colour as that of the rest of his body; the black terminated by shades, at the circumference of the white, by an irregular line, somewhat indented by the transverse lines of the neighbouring dark skin. The cuticle I turned back perfect, and it was found here and there studded by endermoid glands, a large portion that covered the centre of the spot being perfectly white,* in which respect it differed in toto from the *brown epidermis* of the rest of this African; for it was whiter than that of many Europeans. About one-sixth of the radius from the centre of the spot very slight buffy traces of colouring matter were apparent; they increased, and gradually became browner and deeper in tint to the confines of the circle, where it suddenly was black, being there lined by full coloured rete mucosum. From coagulation produced by liquor aluminis, and experiments after maceration, a thin colourless rete was traced over the whole white patch, which was more evident as it approached the brown and black confines of the circle, where it became as strong and dark as any I had previously seen. The corresponding surface of the cutis was white; but within a line or two of the circumference, like the rete and cuticle, it also had a slight brown, corresponding tinge, and here and there a dark dot, just proving the existence of a very limited portion of colouring matter in some of these pits, in which an opaque white gland might occasionally be traced; but they were not nearly so large or so numerous as on the blacker part of the rete.

III.—On the colouring matter in the black, and its similarity to that discovered in certain parts of the white person.

The colour in the skin of the negro appears, to the eye of a superficial observer, to be formed of an uniform brownish-black coat; but when the rete is detached with the cuticle,† and its inner surface examined

by the microscope, (to ascertain the cause of the colour), it will be found to present the appearance of having had a reddish-brown fluid poured out upon it, in almost parallel wavy lines, lengthwise of the patterns in the skin, and as if these principal streams had intermingled with cross currents, bearing oval and round interstices of various sizes, mostly inclined in one direction from left to right, and vice versa on the opposite side of the body. Let the rete next be held aslant to slight rays of sunshine, and examined closely through a powerful double lens, or magnified 600 times, and it will at once be perceived that that this colouring fluid is itself deposited in extremely minute drops, or dots, at least so it appears when dried. I am prevented from

Fig. 2.



considering that this point, as to nature's mode of colouring the skin, has been settled by Breschet and Roussel de Vauzeme. I can discern ducts containing similar colour entering from the pits of the cutis; but they are so minute I cannot be certain of their nature. In skin taken from the scrotum, labia, and other dark parts † of the European, I have found that the colouring matter of the rete in those situations (with exception of intensity), exactly corresponds in deposition, in figure, and colour with that of the African just described; the only difference being, that in the first it is secreted in smaller quantity, forming a thinner layer, and therefore does not give so deep a tint to be reflected through the white cuticle of the former, as through the brown one of the latter race; and the darker colour of the last named membrane (from its contact with the rete) tends not a little to influence the ultimate colour reflected. In this newly-discovered similarity of colouring matter, what a beautiful link is presented by nature for setting aside the vain speculation of man as to superior distinction, by identifying the white with the coloured races of the earth as members of one great family, as being of one and the same creation.

The quantity and quality of the colouring matter secreted in persons of all nations appears to depend much on the vigour of body in the individual. If the European be in strong health, the rete is yellowish-brown, the eye is bright, and the hair is glossy. Take the negro in good condition, his rete being full of colour, he is almost black, his

* A fine instance this of vitality and absorption acting on the cuticle.

† The cuticle in this race is dark-brown, though transparent; in us it is almost white.

† It is the darker coloured rete that gives shade to skin tanned by the sun, and also to the brunette.

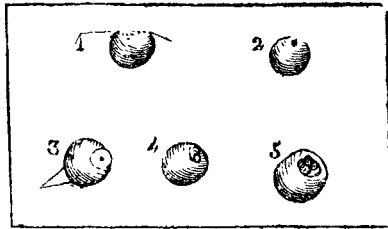
eye is sparkling, and his hair strongly curled. If the white man suffers long sickness, his rete becomes pale, or sallow, his hair rough, and his eye dim. Let the black man become emaciated, his rete changes almost to gray, his hair becomes scanty and his eyes lack their lustre.* The colouring matter is secreted very sparingly, and is probably imperfect, prior to birth, for the infant of the negress, when first born, is of a yellowish-orange colour, little darker than the white; and such a slight difference is there, that the medical attendant is often obliged to inspect the scrotum (its darkest part) to ascertain whether it is the offspring of a white, or of a black father. But after the rete, has been exposed some days to the influence of light, it gradually assumes nearly the hue of its parents. About two years, however, must elapse before its skin acquires its full depth of colour. The secretion of the colouring matter appears to be an arduous effort of the constitution, and this process seems to go on scantily, not only before birth, but especially in old age; for the aged negro loses colour, and "the jetty stripes left by the lash become white as their possessor gets into years."† Now, having observed that the quantity of colouring fluid secreted varies under particular states of health and disease, and having considered these instances of local change, we can have no difficulty in believing that the cessation of the secretion of this pigment, does, at times, occur in patches, and that on absorption removing from the rete and cuticle of these spots, the colour already deposited, the parts becomes white; this at once accounts for the lusus described. No doubt there is a constant supply of colouring matter commonly secreted, and as constant an absorption of it going on, similar to the process known to take place in all the serous membranes of the body. Hence I cannot consider the circumstance of the rete in the black man becoming white in spots, as more extraordinary than the rete of the white man becoming brown in spots,‡ or than a single lock, in a dark head of hair, being changed to white § during illness; or than the yellow foetus growing black, or the jetty stripe being changed to white; nor so much so as, the blue eye and red hair of the fair skinned girl assuming a permanent black colour, from small-pox.||

IV.—On the structure and use of the epidermoid glands.

The cuticle, though so thin in itself, contains, or is connected with, so many organic parts as to preclude even a cursory notice of them in the limits of a paper; yet

I cannot omit some account of a numerous set of white bodies that are most easily found in the skin of the black. They have been recently mentioned by my acquaintance, the late Dr. Wallace, as epidermoid, or perspiration glands. Their size is just sufficient to enable them to be seen with difficulty; they stand out from the inner surface of the cuticle and rete, looking (to the naked eye) like particles of dust; they are placed rather irregularly in the skin; generally there is one in the centre, or most prominent part, of each lozenge, or pattern of the cuticle; at times there are two, three, or even more. In the latter case some may be observed near to, but seldom under, the cuticular lines; in some parts of the palms of the hands and soles of the feet these bodies are arranged in alternating rows. In the microscope they are seen sprinkling the under surface of the cuticle; they seem to be hollow, white, spheroidal bodies, formed of semi-transparent albumen, with very polished surfaces; at their base, one here and there may be seen to have a short slender tube, or peduncle, terminating in a point.

Fig. 3.



They seem to have a light spot on their surface, from reflection of light; in many this is surrounded by a dark ring. On viewing the exterior of the cuticle covering these glands, there may be seen furfuracious, dusty white spots (fig. 1 section). The cuticle over them is far thinner here than elsewhere, with a little rise, so that the glands may be distinguished through it, and each sphere on this, its upper side, appears to have a black dot in the centre, instead of a light one, as on the opposite side; and in some it is surrounded by a ring of dark colour. On more narrowly inspecting them, in a bright light, by assistance of a double lens of two-tenths focus, it became evident that immediately over these spheroids there was a slight depression in the rises of the cuticle (fig. 1), resembling a lacuna; in others, where the mouth chanced to remain open, it appeared most distinctly that they were the entrances into cavities; and after more frequently inspecting these minute parts, I perceived one cellule, in others two, if not three, cellules in each, opening upon the surface of the cuticle, in the thinnest part, and surrounded by a collar of thicker matter (figs. 4 & 5). These bodies are, as to shape and colour, in every respect distinct from the follicles and sheaths of the

* For the latter fact I am indebted to Dr. Hancock.

† Vide Treatise on Syphilis, p. 123.

‡ As in ephelids.

§ LANCET, January 1834.

|| This I have seen in a female.

hair; the cuticle covers the upper part of each gland, and the cutis is in contact with the lower; but there is a deficiency of rete where they lie, so that nothing intervenes to cut off the direct communication between the cutis, the bodies, and the cuticle. This peculiar anatomical structure leads me to suspect that these cells may act, during the exosmose, or transmission of perspiration, like a sponge in a filter. That fluid makes its exit through hundreds of pores, but always by two or three star-like ones, over these glands, which are larger than the rest, as may be seen by aid of the Stanhopian-glass. These mouths appear equally well calculated to imbibe also; and I found in one of them sol. cupri sulph. that had been applied in its neighbourhood. It should have been remarked that the above described are totally different from the deep-seated glands, to which this office is attributed in the able researches of Breschet and Roussel de Vauzème. Similar bodies exist in the skin of the white man; but they are, as might be anticipated, larger and fifty times more numerous in that of the black, a circumstance, it must be allowed, highly confirmatory of the former expectation, as the high temperature endured by generations of the latter race would of course cause a far greater development of organs so perpetually in use. This anatomical principle may serve to explain the reason of the European constitution being so little capable of adapting itself to hot climates, when compared with that of the African. In the latter race the glands are often encircled by a perceptible ridge of colouring matter. If perspiration be the function performed by these bodies, the most extraordinary fact remains yet to be stated, viz., that these glands are continually shed during life, and, I conclude, as often regenerated; for I have detected two or three of them in a single scale from the healthy cuticle, and a greater number in portions of skin detached during psoriasis palmaria. New ones must be formed, I apprehend, to replace them, or the body perishes for want of the performance of their function. Dr. Wallace states that these glands are all turned black, or removed, with the cuticle; but, in my experiments, I have uniformly found twice the number remained with the rete, and when it is removed many even then were left adhering to the cutis.

There is yet another set of bodies, all of them situated in the cuticle, also looking like glands, but too minute to be visible to the unassisted eye, and scarcely so by aid of a double lens. From appearance and situation I have no right to consider them to be the last described class of bodies in a state of formation, nor are they the ultimate organic particles of which the texture of the skin is composed. I have been unable to trace any duct running from them, and can-

not, at present, even venture a conjecture as to their office.

I shall next describe two very curious, but little noticed appendages to the dermoid coverings.

V.—Of the dwarf hair and the long hair; their structure and difference.

First I should like to ask,—Is the general dwarf hair of the human body a separate and distinct appendage from the long hair? I believe that it is; for at a very early period the entire skin, and in particular the face and scalp of the foetus in utero, are covered with millions of filaments of the former, months before there appears a hair of the latter kind upon its head. Brute creatures also have dwarf hair concealed by their long hair, and the spermaceti whale is said to possess it, even under his cuticle. The dwarf-hair filaments generally rise from the eminences of the cuticle, but the long hair usually passes out of its depressions. The dwarf-hair appears to be a colourless, tubular prolongation of the cuticle, whilst the long hair tube is coloured from its origin below the cutis. Each dwarf-hair filament is completely enveloped by a process from the cuticle; but the long hair appears to receive only a partial sheath as it passes through it. The sacculi of the dwarf-hair lie superficially in the skin; the bulbs of the long hair, on the contrary, lie deep in the cellular membrane below the cutis. A long hair can be traced through the greater part of its transparent glands; the dwarf-hair cannot be seen until emerging from its sacculi. Dwarf hair, in us, appears to decrease in the number of its filaments as the body is developed; whilst the true hair, on the contrary, seems to increase from adolescence to middle age. There is a memorandum, by the late Mr. Hunter (vide catalogue of the Museum of the Royal Coll. Sur. Partii.) that appears to me to explain these facts. He states, that "Hair is of two kinds of growth, one that grows to its full extent and then becomes stationary, and another that grows until it arrives at its full extent, and then must be shed, and that man has both sorts." Now, as the dwarf-hair may be seen in all stages of progressive formation, from the most diminutive thickening of the cuticle to filaments so large and so coarse as to resemble long hair, and since no author (as far as I know) has accounted for its disappearance, may not the delicate dwarf-pile of children be gradually changed into the deciduous, or second, kind of hair observed in the adult? And am I not borne out in this belief by the fact of the shedding of their filaments,† and by the superficiality of their sacculi, compared with those of the long hair. Taking it for granted that such

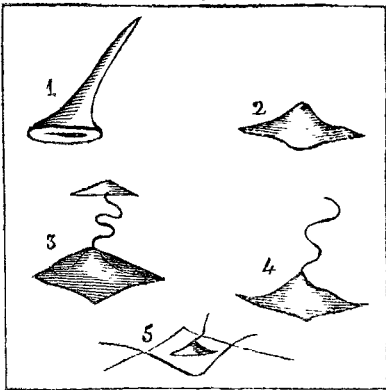
† By help of the Stanhopian glass, debris of scales and portions of down may be seen to be constantly detached from the surface of our skin.

really is the case, I shall henceforward describe them under the distinctive appellations of the "Deciduous" and the "Permanent" hair.

Most of the deciduous hair, or down, is so fine that it can scarcely be seen by the eye, unless a portion of skin, outside upwards, is held in a slanting position on purpose, with a good light beyond it; even a magnifying glass will not always enable you to detect it, except the object of search be placed as above directed. The filaments of the deciduous hair in the microscope mark its shape by a single outline, as being a simple tube becoming broader at its base. (Vide fig. 1.) That outline is probably occasioned by the shade of its envelope from the cuticle, which in shape resembles the finger of a glove, and is as easily stripped and inverted, after blistering.

The base of the deciduous hair is a conical projection in the cuticle; its new formed filament lies curled up and concealed under a little prominence in the centre of the scale covering each lozenge space. (Vide fig. 2.) When about to pass out the superincumbent scale has a black dot on its summit, becomes browner, and is disposed to desquamate. If that process be then artificially completed by the end of a probe, or a scratch with the nail, the concealed filament instantly uncoils and erects itself into view, carrying and supporting on its apex the scale that covered it a moment before.

Fig. 4.

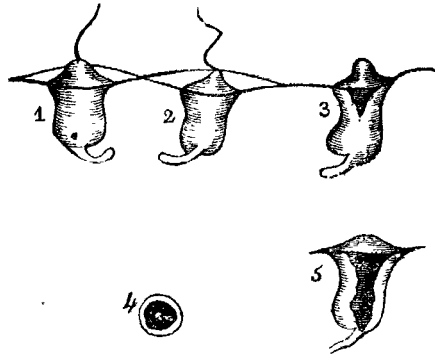


1. The down envelope.
2. The covering scale.
3. The uncoiling filament.
4. The process completed, by the detachment of the scale from the apex.
5. Patterns, or lozenges, formed by lines in the skin.

At times two or three filaments pass out from under one scale; this depends upon several folliculi being set close together. The deciduous hair sacculi lie under the cuticle shaped almost like a vase, and are formed of semi-transparent albuminous matter. At their lower part they terminate by a slender tube, to which I have traced a

delicate white thread, which I believe is their nutrient vessel; and near the top of a few sacculi may be noticed a triangular shade, before the filament has passed out.

Fig. 5.



- 1 and 2. Sacculi, foramen, and filament.
3. Dark shade in its centre.
4. Transverse section at its centre.
5. Longitudinal section.

(Fig. 3.) In some few I have seen a dot on this side, which I take to be a foramen. (Fig. 1.) If a sacculus is placed on a hard surface a transverse section may be made, across with the point of a lancet, when a round shade may be observed on the end of with the assistance of a lens, by cutting it each portion, as if a cylinder had been divided (fig. 4). I also tried to make a longitudinal division, and after many attempts succeeded with about six, but could not observe more than a shade running lengthwise within them (fig. 5). I am led to conclude that, when dried, they are hollow, but that in their natural state they contain a glandular apparatus of great delicacy. These sacculi occupy slight pits on the surface of the cutis, but not the deep ones that leave marks and give exit to permanent hair; deciduous hair generally comes away with the rete and cuticle. When numerous their projection on the surface constitutes the appearance termed goose-skin.* At times the filaments of the deciduous hair seem to have difficulty in projecting themselves, and then one here and there instead of, as ordinarily, piercing the superincumbent scale of the lozenge pattern, makes its appearance under the edge. These points in some skins are too minute to be seen; but in others, where the features are larger and well marked, or under disease, the sacculi may be collected, and at times they will be found the 15th of an inch in length.

VI.—Of the permanent hair, its structure and situation.

Permanent hair, such as that of the scalp, the whiskers, and the pubes, pierces the

* And not the projection of the endermoid glands, as stated by Dr. Wallace.

cutis, rete, and cuticle, passes through perforations out of deep pits in the former, and may be obtained and examined in the following way:—When the surface of the body is beginning to undergo slight putrefaction, and the cuticle is in a state to be easily detached, a piece of the scrotum or scalp may be moderately stretched, by aid of a few pins on a board, and its cuticle carefully pushed off with a piece of silver, shaped like a scalpel, or the flat end of a probe. By this mode of dissection part of the hair will be drawn out, some hairs with, but many without, their glands, and a few others will remain in their natural situation. Next slide the skins, one upon another, so as to slant the remaining roots, and by help of a good lens and a sharp-pointed lancet the coloured hair and its gland may be removed entire. If the surface of the denuded cutis be now examined with a glass no openings can be traced through which the hairs were extracted, which has led many to assert that the hair has its roots above the cutis. Now, take the remainder of the skin, pinned to the board, and expose it two or three days to a slight desiccation, until its surface is about to become hard and dry, and on turning out the remaining hairs by the silver instrument, as before described, the orifices from whence they passed will be found gaping and visible; and if further proof be required any of the hair-glands that remain may be traced, being buried in the cellular membrane and fat beneath the cutis vera.

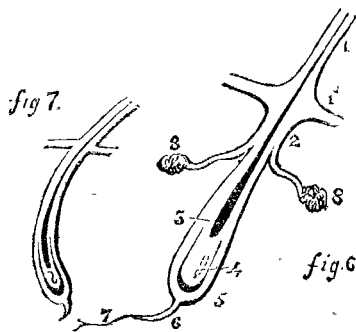
On inspecting the permanent hair and its gland in the microscope its figure may be seen marked out by three lines, it being a coloured tube contained within a transparent sheath. The coloured part gradually

becomes a little thicker, as it comes to an abrupt termination within its gland. This latter apparatus is much more cylindrical than the deciduous sacculus. It is very handsome, formed of a white albumen so transparent that the termination of the coloured portion of the hair can be readily seen within it (3); and in a few a denser semispherical mass may be detected at the bottom of the apparatus, which probably is its albumen-secreting-gland, shrunk and dried (5). The minute tube (which becomes a mere line) at its lower part is most likely for the entrance of vessels (6). The permanent hair apparatus is totally different in its slender make, transparency and contents totally different from the thick and short deciduous sacculus, through the sides of which nothing can be distinguished. The curious convoluted white sebaceous glands of the hair described by Gurlt, I have dissected and depicted. (Vide 8, fig. 6.) The cuticle sends off a delicate long sheath upwards to envelope the permanent hair (1), and another downwards to within a short distance of the bulb (2); but whether the membrane splits into two layers to form them I cannot make out; most likely it does. The hair becomes gradually more slender until its upward extremity terminates in an apex, that is, if it has never been cut. When a hair comes away during dissection it always separates below the cutis, just at the junction of the coloured portion with the transparent cylinder that incloses its bulb. The hair of each part has its distinctive peculiarities; the hairs of the scalp are stronger, their colouring matter is darker, and generally they have a curve just above their bulb, which, if considerable, gives a disposition to curl (vide fig. 7); and I may add, that piercing the skin obliquely gives, in addition, the direction they may slant or lie in in all creatures.

I have been induced to give a figure of a magnified hair from not having seen a correct and distinct one in the work of any author. Rayser's is the best, but he appears to me, by some accident, to have taken as an instance the deciduous hair-bulb instead of the permanent one, in the figures in his plate.

Having described the structure and peculiarities of regenerated cuticle in the Ethiopian and European, and the phenomena presented by small-pox and injuries to the cutis in both races, also the changes worked in the skin during scarlatina, erysipelas, rupia, tubercles, etc., in the chapter before alluded to; and after thanking Mr. Lane for supplying me with portions of skin, I shall conclude a communication which has exceeded in extent that originally intended.

Figs. 6 and 7.



1. Upper cuticular sheath.
- *1. The level of the cuticle.
2. Lower cuticular sheath.
3. Coloured bulb and tube.
4. Apparatus, or cylinder.
5. Its gland, probably.
6. A slender tube.
7. A mere thread, most likely of nerves and vessels.
8. Sebaceous glands.