

Cantrell (J. A.)

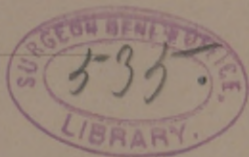
ABNORMALITIES IN THE COLOR OF THE  
HUMAN HAIR:

*WITH A REPORT OF CASES.*

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**ABNORMALITIES IN THE COLOR OF THE HUMAN  
HAIR.<sup>1</sup>**

*With a Report of Cases,*

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ACCORDING to the literature of the subject, I find that the abnormalities in the color of the human hair are found to be gray or white, blue, green, yellow, red, brown, black, and that peculiar condition in which one hair has segments differing from others of the same hair. I also find that a number of instances have been recorded wherein the change has been periodic, without any known cause, or in which season has seemed to be a predisposing factor; and still others in which the hairs have regained their normal color after several years or more of abnormalism.

The abnormal color may be congenital, as in the many cases of albinism, and, while this condition is more prone to be seen in the negro race, it often occurs in whites. It may be complete, and generally it is the offspring of albinos that show this condition; but an example is mentioned by Hutch-

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<sup>1</sup> Read at the meeting of the Philadelphia County Medical Society, April 10, 1895.



inson of an albino child being born to parents who themselves were dark. This is the only case on record that I can find, although Kaposi said, in 1874, that it was a well-known fact. In my search I could find no reference to any case of albinos giving birth to other than albino children. Cases have been recorded wherein this condition has been partial, as in those mentioned by Godlie and Morgan, in which a tuft of white hair was mingled with the normally colored ones, this peculiarity being inherited as late as the fourth generation. Anderson refers to a similar example occurring through the third generation. There are many examples in which this change has occurred in the colored race, as that of the so-called leopard-boy, who was exhibited in museums. A case appeared at my clinic some years back in which a colored woman, thirty years of age, presented a tuft of white hair immediately in the median line of the forehead which had a diameter of two inches or more; the woman also presented a difference in the color of the eyes, one being of a bluish tinge, while the other was brown. This woman was accompanied by her daughter, who had exactly the same condition of the hair as well as of the eyes.

The premature loss of color in the hair is no less an important condition, and whether it is a family predisposition or whether it takes place more or less suddenly, whether it is caused by some derangement of the nervous system or accompanying some depressing or grave disease, it is nevertheless abnormal enough to claim our attention.

I have made no attempt to collect those cases in which family predisposition has been a possible cause, as all are aware that this takes place, and I feel that it would be a waste of time to give more than a passing notice to that condition.

In many cases this condition of graying or whitening of the hair has been more or less sudden, and the cause has been one of the conditions enumerated.

Of the many cases in which the change occurred in a few hours or a few days, I include those of many writers. Mention may be made of those in which the change took place in a very few moments, as the persons were either brought out to execution or were awaiting the hangman's noose or the knife of the guillotine. Darwin, quoted by Walter Smith, mentions a man whose hair while being brought out for execution changed color before the eyes of the spectators. Laycock refers to a Sepoy who became gray in one-half hour. Parry states that a prisoner became white-haired within fifteen minutes while confined in the guard-house. Wilson refers to a young lady who was awaiting her affianced to come home to conclude his marriage ceremony, and who suffered the same effect on hearing of his sudden death. Smilie speaks of another case, that of a young man awakening and finding a grizzly bear lapping the blood which was flowing from a wounded arm. Dewees found gray hair on the forehead of a woman's head during her accouchement, which returned to the natural color in four or five days. Boyle met with this sudden change in a young man who was seized by the guards and was, as he thought, to be put to death. Miner witnessed it in a young

boy who had learned of his mother's death. Sir John Forbes, who had gray hair, suddenly became white, which condition remained for a year, and at the end of which time it again returned to the gray. Other cases are mentioned by Schenk, Hahne-  
mann, Pechlin, Birsch-Hirschfeld, Nicholaus Florentinus, Borelli, Callius Rhodiginus, Eulenberg, Seligmueller, Marcellus Donatus, Fabricius Hildanus, Camerarius, Scalinge, and others.

There are other cases in which the change was less sudden, such as that of Brown-Séguard, who noticed the change day by day in his own person ; of Sir Thomas Moore, the Chancellor of Henry VIII ; of Henry of Navarre, who changed in twenty-four hours ; the Monk Ubipertus, who had to become gray in one night to obtain a bishop's miter ; Louis of Bavaria, who had condemned his wife to death ; the well-known Perat, the wife of Laclere, who had to give testimony before the Peers in the case of Louvel ; Marie Antoinette, but whom Charcot proved had gray hair before the death of her husband ; the case of Smyth, in which a light-haired young man became gray in some places and jet-black in others ; those of Landois and Pye-Smith, in which the change was noted after a debauch or delirium tremens ; Ludwig Sforza, who had fallen into the bad graces of Louis XII ; a man who turned gray in one night after military service in very cold weather, as referred to by Hardy ; Smythe's patients, who turned gray in some parts while others became black, the skin also changing to a bronze ; that of Banks, in which a young woman showed the condition on the eyelashes ; Smilie's case of a young man,

who had staked his all on the fortunes of a card, and who winning found on the next morning that his hair had become gray ; Fowler's case of a girl who was chlorotic and who had a gray spot, two inches square, on the occipital region ; the friend of Ferguson, who changed after business losses ; a young girl of thirteen, who, according to Howe, awoke one morning and found a spot one-half inch in breadth on one side of her head, the other showing the change soon after, and the whole head undergoing the change in seven years ; this writer also refers to a girl of eight years who had light hair on one side and dark-brown on the other ; Anderson saw a case affecting the upper eyelid, in which this part, with the left whisker, was also white and of some years' duration ; Thornton gives the notes of the case of a young lady in whom the eyebrow and lash became white within a week after a sudden fright ; Faldenheim speaks of a change beginning at the age of twenty and being complete at thirty-three. Cases occurring in four or five days are also recorded by Richter, Bichat, and Moleschott.

Villermé records that in a girl of thirteen the lost hair was replaced by a woolly growth on part of the head and by brown hair on the other, which after a time faded into gray, some of which fell out and left a sad condition of affairs. Brandis has seen one side of the beard white, while the other retained its natural color. Of the many cases in which disease has been a predisposing factor I include that of Crocker, in which the eyelashes became white consequent to a sympathetic ophthalmitis, after removal of the opposite eye ; and still other instances of this

are spoken of by Nettleship, Hutchinson, Jacobson, and Schenkl. Cases following neuralgia are mentioned by Wilson and Paget, and in the latter there would be a return to the natural color in four or five days, Berger's being witnessed after a hemiplegia on the right side of the head and face; Murray met with it after the removal of a fibroid tumor of the uterus, and in this case it occurred after a severe neuralgia during the night, being confined to the internal half of one eyebrow and the corresponding eyelash. It has also been noted as occurring with epilepsy by Marselli and Beigel; with locomotor ataxia by Bulkley, Debove, and Bartholomy; coincident with cerebral tumor by Bourneville and Poirier; following typhus by Joannet; and in malignaut fever in a case of Compagne, the hair was noticed to turn completely gray by the sixth day, but on the seventh it commenced to turn dark, and on the fourteenth it had become its original black color. Raymond observed this condition in a woman of thirty-eight, who parted with her son and who afterward lost money; during an attack of neuralgia she found upon the upper part of the head that the hair had turned red, while the remainder was completely white. Lorry says that graying of one side sometimes follows severe toothache; Wallenberg refers to a child having scarlatina, in whom the hair and nails fell out, and were replaced by a milky-white skin and albinotic hair; Naylor also speaks of a similar cause in his case; Ludwig has known the eyelashes to change color after smallpox.

Following this condition we have another in which we are confronted with the so-called ringed



hairs, and several cases of this very interesting abnormality are recorded by Wilson, of a boy of seven years in whom the normal or brown segments were one-fiftieth of an inch long, and the white and abnormal segments were about half this length. To be mentioned also is Lesser's case of a child of four-and-a-half years, who was born without any hair, excepting the eyebrows, which were normal, and soon after the scalp presented the appearance of goose-flesh. The hair began to grow by the second year, the color being brown; the longer hairs were normal, while the short hairs were generally ringed. In this case there was also trichorrexia nodosa. Karsch has referred to a case in which the rings were not of uniform size; Crocker speaks of the moustache of a gentleman, aged thirty-nine years, which was also associated with trichorrexia nodosa; Richelot mentioned a chlorotic girl, in whom the hair became gray for two or three inches at its root, the parts beyond being unchanged. The chlorosis was cured by iron, and the hair-pigment was again secreted, so that after a time she had brown hair at the roots and ends, the center still remaining white. Smith, Spies, Landois, G. Simon, and Thomson also have seen this condition; Unna speaks of a case of white nails, in which there were also ringed hairs.

In the following illustrative case the patient was a man of forty-seven years of age, who was brought, about the middle of the year 1889, to my clinic by Dr. John A. Fell, of Doylestown, Pa. I obtained the following history: His paternal grandparents lived to be eighty-two and eighty-four years of age, respectively, and his father was eighty years of age at the time of his death. He had two paternal uncles, one dying at the

age of sixty-five of pneumonia, and the other of dissipation; there were two paternal aunts, one of whom died at the age of seventy, from a fall down stairs, and the other at the age of sixty-five years. All had good heavy hair, which was of a dark-brown color, the man's father having very few gray hairs at the time of his death. Of the maternal grandparents, his grandmother lived to be quite aged; his mother lives still at the age of eighty years. Of three aunts, one died before the birth of the patient, and consequently he was not aware of her state of health; another died during parturition at the age of forty years, and the remaining one in old age. The uncles were quite aged at the time of their death, being seventy-eight and sixty-five, respectively. The members of this branch of the family were of a sandy complexion, their hair turning gray or white at an early age in every instance. The patient had three brothers living at the ages of fifty-six, forty-nine, and forty-two, respectively, and one sister at the age of fifty-five years. In all of these the hair had not undergone much change, although in the eldest there was a slight tendency to become gray.

The members of both families, from the grandparents down to the present generation, had always enjoyed the best of health, with the exception of the patient's mother, who had always been a sufferer from temporal neuralgia.

The patient was born in Pennsylvania, October 22, 1842, and was, therefore, forty-seven years of age. He had two sons living at the ages of twenty and sixteen, respectively, there having been a stillborn daughter between the males. His habits have always been steady; he was never a drinker, or otherwise "fast;" he had never suffered from gonorrhoea or syphilitic infection. At the age of four years he had typhoid fever.

During the War of the Rebellion he was wounded on September 17, 1862, suffering a compound comminuted fracture of the fibula, caused by a Minie-ball. He was confined in a hospital for five months. He suffered from iritis in both eyes, the marks of the cupping still being visible in both temporal regions. Since the war he has

been troubled with "army diarrhea." He was a moderate smoker.

The trouble for which he sought advice began in November, 1888. He complained of severe pains in his head (no particular portion), from which he was unable to sleep except in short naps; he could not describe these pains accurately. During the day he was almost unable to keep a hat on his head, although it was of light weight, because it felt as if a stone.

These symptoms continued through the winter and summer until July, 1889, about the middle of the month, when, on going to the mirror one morning to comb his hair, he found a white streak on the right side of his moustache. The following day this side of his moustache was perfectly white, the left side showing no tendency to change. Within the next ten days the hair, formerly dark brown, changed color in its entirety, and gradually fell out until there remained only about one-third of the normal amount. At this time he gave me two pictures, which illustrate the appearance of the man just before and just after the changes occurred.

He says that when he goes to bed he is sleepy, but that when he reaches the bed he lies awake for several hours.

On January 5, 1895, I found that there was no change in the color of the hair, except as regards the portion in the occipital region, where the new hair is of the normal color before this change took place. The color of the other portion remains as white as stated in the previous notes. The man told me that he had just about enough hair upon his face to make it necessary to shave once a week.

In bringing this case to the attention of the Society I wish to show plainly that this sudden blanching of the hair does occur. I cannot understand why so many of our medical teachers state positively, even to this day, that it is impossible. Kaposi said in 1874 that there was no such thing as sudden

blanching of the hair, and that if the cases had been examined previously to this so-called change it would have been seen that the condition was gradually taking place—that is, that the pigment was losing its power of giving normal color to the hairs. This writer was not alone in this assertion, as such men as Haller, Barendsprung, Reisner, and Hebra were counted in the list. I therefore feel great trepidation in reviving the subject at this time.

The condition of sudden change must certainly have been known, for if we refer to the words of Lord Byron they are certainly conclusive:

“ My hair is gray, but not with years;  
 Nor grew it white  
 In a single night,  
 As men's have grown from sudden fears.”

*(Prisoner of Chillon.)*

The question remains, Why in one instance a person will have brown hair, or red hair, and in still another it will be black? This can only be determined by the number and size of the air-bubbles that are contained within the hair. In the black hairs we have the air-bubbles in minute quantity, while in those of brown hairs we have them in some slight increase, and they are found in larger quantities still in the red hairs. Taking these points into consideration and examining the refractive power of the hairs in this connection, we can readily understand how one person will have color differing from another. And the same explanation may be applied to this sudden loss of color in its structure. We have, perhaps, through nervous shock or some unknown cause, the collection of air-bubbles in

large quantities throughout the entire hairy system, and, as the refractive power of the hair becomes changed, we are confronted with this apparent loss of color.

Pfaff has stated that the pigment is not diminished until advanced age, but I am of the opinion that, except in albinos, the hair is never devoid of this coloring-matter. If the theory is correct that we have a loss of pigment in advanced age, how can we account for the return of normal color of the hair in very old persons? I do not think that re-formation of pigment will ever take place, the color not being transmissible, but is due to the amount of air-bubbles contained within the hair.

If the statement be true that air-bubbles are the direct cause of this condition, it would appear that the cases recorded by Prentiss, in which one of the patients was treated with jaborandi and the other by pilocarpin for some intercurrent malady, and in whom the normal color of the hair returned, would tend to prove it; and the experiments of Pohlman with pilocarpin, in which he obtained the return of color in certain cases, and yet was unable to secure it in an albino rabbit, would add testimony in this direction rather than disprove it.

BLUE HAIR.—Many cases are recorded in which the change has been to a blue in those who are workers in cobalt-mines or who are employed in the manufacture of indigo; thus Borellus records the case of a man who had worked in the manufacture of indigo for twenty-five years, and whose hair had been blue for at least twenty years. In the case of Beigel, the blue color did not penetrate into the

substance of the hair, but particles of indigo were deposited in an irregular manner upon the cuticle of the hair.

**GREEN HAIR.**—Green hair has been witnessed in those who are employed in copper-mines, as in the case of Petri, of a man of seventy-eight years, in whom the hair of the scalp was green, but in whom the hair became its natural color after washing in solution of caustic ammonia. Billi refers to a man with ringworm of the scalp, who was treated with corrosive sublimate and an ointment of yellow mercuric oxid, and in whom the hair became green. Another case is recorded by Orsi, of a railroad-workman who became suddenly green-haired, the green hairs being mixed with the gray; washing with ether, alcohol, or a dilute solution of potash did not affect it, but the hair on being cut grew out again gray. Clapton met with cases of green hair in copper-workers, and Wiltshire in those who were pin-makers. Joseph Frank also observed it. Rommel met a man of thirty years thus affected, but who had never worked in a mine. Borellus records the case of a young man who had green hair and green perspiration. Blue hair is also seen in those who work in brass. Leonard, Bouchardat, and Posner believe that the colors, both blue and green, are only superficial, and can be easily rubbed off; but Elbe, who has made a comprehensive study of this condition, states that this discoloration is not alone confined to the superficial part of the hair, but is intimately connected with its entire substance and cannot be rubbed off. The recorded cases disprove the latter assertion of Elbe.

**YELLOW HAIR.**—Smyly records the case of an infant of four months whose hair changed from its usual mouse-color to that of a reddish-yellow. The right eyebrow and the skin of these parts, as well as that of the right hand, were icteric; the pillow also was saturated with a reddish-yellow perspiration. Walter Smith tells of a boy in whom the lobe of each ear was of a sulphur-yellow, the downy hairs being also a bright yellow, while the hair of the head was brown. Many cases have been seen in which chrysarobin and chlorin gas have produced this same condition. Hydrogen dioxid, as is well known, is used to bleach the hair.

**RED HAIR.**—McMurray mentions a man having a hemihyperidrosis of neurotic origin and herpes zoster of the corresponding side, in which the hair of the affected side was of a light red, while that of the other was dark. Squire referred to a deaf-and-dumb boy of sixteen who had dark-brown hair in some places and auburn in others, and which to some extent resembled a tortoise-shell cat. Isoard describes a young lady, who was deaf and dumb from birth, and who every time she had a certain fever the hair, which was of a pleasing blond, became a dusky red; but that so soon as the febrile symptoms diminished the hair became natural. Alibert records an almost similar example; he also refers to a case in which after a severe illness a head of brown hair became one of bright red. Mention may also be made of the offspring of parents who are dark and who show a tendency to reddish hair. Congenital redness has been witnessed in members of the colored race. Leonard speaks of a young

man who had brown hair, and which afterward became a positive red after a few years' residence in the hot climate of Sumatra.

**BROWN HAIR.**—Wilson cites an instance of a man whose white hair turned to a brown and back to gray again before his death, at the age of one-hundred-and-fourteen years. Belcher refers to a woman of ninety-five, who had been insane for fifty years, and who at her death had brown hair, there being not a single gray hair on her head.

**BLACK HAIR.**—Pyrogallic acid will make the hair black. Wilson records an example of the change to black in a woman of ninety-five, whose gray hair turned to black, and which became gray again before her death, at one-hundred-and-five years. The cases recorded by Prentiss are indeed unique: the one in which a woman of seventy-two was given pilocarpin, and the other of a woman of twenty-five who had taken jaborandi, in both of whom the hair became black. Sykes referred to a man of eighty-one, who had white hair which in a few years became black, and Bruley to a woman of sixty years, who had naturally white and transparent hair, which became jet-black four days before her death. Albert alludes to a person in whom the hair, from having been previously brown, became deeply black. Copeland remarks that in a number of instances gray hair has become black. Beigel refers to this change taking place after typhus fever; this was witnessed in a woman who had blond hair, which was replaced by coal-black hair.

**PERIODIC CHANGES.**—Warner records the case of a gentleman whose hair turned from black to



white and back again three times in thirty years ; the change from black to white was always rapid, while that in the other direction was slow and took some five years for completion. There would be a pause of some years when the color was normal, and then it would become white again. Reinhard gives the notes of a case wherein, in an idiot, the change was periodic, being from a reddish to a blond yellow. Rauber records a case of this change in an epileptic. Wilson saw it gray in winter and natural in color in summer.

RETURN OF COLOR.—Isdell refers to a man of sixty-two, with gray hair, and when eighty-three it was of its former normal color. Allanson Abbe speaks of a case returning from gray to quite dark, and even black in places, mingled with gray hair. Graves records many examples ; one was blistered, and the hair came in black, and remained so. Another was bald on the vertex, forehead, and temples ; this was blistered, and a growth of hair occurred in a ring. There was also a girl who had several bald spots remaining after a tinea ; in this case common gas-water was used, and the hair regained its natural color. Still another was that of an army-officer who had been in the East. Sir John Sinclair mentions a Scotchman dying at the age of one-hundred-and-ten, in whom the hair regained its normal color. Joannet speaks of several instances, one of which was in a man who had been campaigning in the East, and in whom, upon remaining home for a year, the normal color of the hair returned ; another patient took a sea-voyage for a year, with the same result. Hoffman records the case of a gentleman

who was an incessant user of tobacco, and whose hair became gray; upon relinquishing the tobacco the hair again became black. W. O'Neil refers to a man who was gray and bald; three-and-one-half years after hemiplegia, and at the age of sixty-two, he noticed that dark hair was growing on the bald spots, and the gray hairs fell out and gave place to dark-brown hair.

I recall the case of a friend of about sixty-three years of age, whom I have known to be gray for at least fifteen years, and during the past year or two the normal black color of the hair is showing itself in the new-formed hairs.

MISCELLANEOUS.—Hauptmann refers to a case of a body which had been exhumed more than twenty years after burial, in which the hairs appeared red, whereas the hairs of the individual at the burial had been dark brown. Leonard speaks of a case in which, after death, a head of red hair changed in the course of a few hours to blond, and within thirty hours to gray.

Oesterlin has recorded a case wherein the hairs were more intensely pigmented toward their roots.

If any reported cases are not included in this list, I beg indulgence, owing to my inability to obtain data.

315 SOUTH EIGHTEENTH ST.

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