

Correspondence.

How to Make the Hair Grow.

To the Editor of the Scientific American:

Experience has taught me that it is best to keep all oils or grease from the hair. Don't let barbers oil it. I find wetting with water best. At least once a week rub the yolk of an egg, or half of it, well into the hair and scalp, and rinse off thoroughly with tepid water. It will promote growth and color, probably largely due to the sulphur in the egg. This course has started a new growth of hair with me, not very thick, but better than none at all. A.

Lansing, Mich., February 26, 1889.

Petrifying Springs.

To the Editor of the Scientific American:

There is a well known petrifying stream of water at Knaresborough, Yorkshire, England, three miles from Harrogate, the well known sanitarium. It is a cascade from the River Nidd, about 15 feet high and twice as broad, and forms an aqueous curtain to a cave known as Mother Shipton's Cave. The dripping waters are used for the purpose of petrifying anything sent to be hung up in the drip of the water ledge, which flows over, as it were, the eaves of the cave. This ledge of limestone rock is augmented unceasingly by the action of the waters which flow over it. This cascade has an endless variety of objects hung up by short lengths of wire to be petrified by the water trickling over them, as sponges, books, gloves, kerchiefs and veils, hunter's cap, fox, cat, dog, birds, boots, etc., just as fancy prompts people to seek petrifying results. A sponge is petrified in a few months, a book or cap in a year or two, cat or bird a little longer.

A museum of many interesting things is to be seen in the house of the custodian of the Mother Shipton Cave. The things petrified are mostly larger and somewhat misshapen by the gravitation of the silicate, making the mass larger on the under side of the suspension in the cascade. A cat, for instance, has the legs nearly joined and larger in proportion than the body. One cat shown in the museum had the head broken off at the neck, showing the whole was limestone throughout, with not a trace of the organic structure of the original cat. A glove became like a hand. A book of sermons, a block of stone, from which science may read its sermons through without printing or leaves. When looking at this cascade as an artist, I could not help thinking of the poor old woman who lived before her time, and who was spared from the fate of many thousands of human beings called witches, who have been burned by the ignorant mob or legally by the state officials, mostly at the instigation of the priesthood. It would be a fitting place for a statue of the historic personage—whose prophecies are one by one being verified—to be seated within the cave looking out through the veil of dripping waters on the visitors to the cave, and as fitting inscription in front, the words from a modern poet might be written:

"All things are sacred in their time and sphere!
Naught can escape the action of this fact,
Nor fail to yield an essence, growth, and share,
Through media with affinities to act."

—The Epic of a Day.

I have a human head petrified, but by what action I do not know. It was found in digging a trench through gravel in the park at Bulstrode, in Buckinghamshire, England.

The subject of petrification is highly interesting, and deserves careful investigation. I believe many specimens of prehistoric tools, as well as organic remains, might be recovered from the earth if geologists were qualified to judge of tools by external formation. Geologists, unfortunately, are too often only book and stone students, and not capable of judging by appearance of a petrified tool as a bit of stone only or not.

I. CHARLES KING.

22 Grove St., N. W., London.

Paint the Shingles.

The *Timberman* very wisely remarks that it has always seemed singular that in the use of paint to preserve wood exposed to the weather, the fact that a shingle roof was omitted from the catalogue was invariably the rule. This idea or oversight was one of those things in which custom becomes habit, and because every one else did so, all the rest followed suit. It is safe to presume that the custom of leaving the shingle roof unpainted originated in its angular form being less exposed to the after effects of rain or snow. A little thought will show the folly of such a conclusion when remembering the frail nature of a shingle and the slight fastening it has. If paint would be useful on any weather-exposed surface, it should certainly be so on a roof. This fact goes without telling, and in the present style of suburban residences the roof receives its share of paint along with the rest of the building, thus at once combining the useful with the beautiful. It is certainly singular that painting of roofs has not always prevailed, and it adds much to the finished character of the building to see the roof painted.

DECISIONS RELATING TO PATENTS.

U. S. Circuit Court.—Northern District of Illinois.

SCHLICHT & FIELD COMPANY vs. CHICAGO SEWING MACHINE COMPANY et al.

Blodgett, J.:

The first, second, third, fourth, fifth, and seventh claims of patent No. 217,909, issued July 29, 1879, to Frederick W. Smith and James S. Shannon, for an improvement in paper holders, sustained (citing *Shannon vs. Printing Company*, 9 Fed. Rep., 205), and *Held* to be infringed by a letter file having its receiving wires arranged to rock forward instead of backward out of contact with its arched wires.

A change in the position of a part of a machine will not avoid infringement where the part transposed continues to perform the same function as before. (Citing *Adams vs. Manufacturing Company*, 3 Banning & A, 1.)

A party applying for a patent as a joint invention of himself and another should be estopped as against a *bona fide* owner of the patent from defeating it by proof tending to show that he took a false oath or otherwise imposed upon the Patent Office. Having given life to the patent by one oath, he cannot be heard to destroy it by another.

Where two parties work together in the making of an invention, each making suggestions to the other, the invention covered by a joint patent will generally be considered as the result of their joint efforts or contributions.

Executions by Electricity.

The new law of the State of New York for the execution of criminals by electricity in place of hanging is now in force, and the State authorities are engaged in arranging the details of the electrical apparatus that is to be officially employed. The *New York Herald* gives the following particulars of some experiments lately made in connection with the subject:

Half a dozen gentlemen learned in the sciences of electricity and surgery had been deputed by State authority to visit Mr. Thomas A. Edison's famous laboratory at Llewellyn Park, Orange, N. J., and there experiment on various lower animals, with the object of ascertaining at what point of a human body the electrical current can most efficaciously be applied in order to secure instantaneous death without burning or disfiguring the flesh of the victim. Several unlucky dogs and calves and one equine quadruped were, on the 12th inst., sacrificed to science in this manner, and the results attained were regarded as thoroughly satisfactory and as demonstrating conclusively the utility and desirability of the alternating current as a means of producing sudden and painless death, whether applied at the head, the arms, feet, side, spine or any other point of the body.

It was shortly after three o'clock when the experiments commenced. They were conducted in a large shed situated in the rear of the laboratory buildings, and the electric current was conveyed by wires from the main structure. Those present were Dr. Carlos F. MacDonald, of the State Asylum for the Insane at Auburn, Dr. A. D. Rockwell, a leading medical electrician of this city, Dr. Edward Tatum, demonstrator of physiology at the Pennsylvania State University, Harold P. Brown, a well known electrical engineer of this city, and A. E. Kennelly, chief electrician of the Edison laboratory, who represented the "Wizard of Llewellyn."

A large Newfoundland dog was the first victim. Unconscious of its doom, the poor animal willingly submitted to the placing in position of the fatal wires, the end of one being fastened to its right forepaw, while the other was placed in proximity to its brain. Then the strength of the current was measured. All being ready, the circuit was completed, and in an incredibly short space of time the dog was dead. It had taken 600 volts of electricity and sixteen seconds of time to dispatch him. A calf was the next subject. It was carried, kicking lustily, into the spacious operating room and held while the deadly wires were arranged, this time at the base of the brain and near the heart. In fifteen seconds from the completion of the circuit the victim was veal. A big mongrel dog, which had been selected for the succeeding sacrifice, seemed somewhat suspicious of the assemblage and declined to approach the wires. He was dragged into position and stood shivering as if cognizant of his rapidly approaching fate. A wire was affixed to his hind leg, another placed over his heart, and in less time than it takes to tell it the poor beast's anticipatory terrors were over.

It was decided to offer up the horse next, and he was accordingly led in and prepared for the slaughter. He looked a despondent, played-out sort of quadruped, and if he knew what awaited him, he certainly did not object. The same wires, several hundred volts and a few fleeting seconds led to his utterly painless demise, and his carcass was dragged aside to make room for more calves and canines. Two medium sized mongrels died for science, and three more innocent calves were butchered in a far more expeditious manner than in vogue at the shambles. By that time the experimenting party had solved any doubts that may

have previously existed in their minds regarding the certainty of quick death by the alternating current, and had gathered sufficient material upon which to base an opinion as to the best points for application of the current. So they abandoned the roles of executioners and turned their faces homeward.

Mr. Harold P. Brown and Mr. A. E. Kennelly said the results attained could not have been more satisfactory, but of course, not having yet discussed the subject, they could not publicly advance an opinion on the greater eligibility of one portion of the body than another for the application of the current. Death, painless and speedy, had resulted in every instance. The force of the current used varied from five hundred to one thousand volts, alternating from two hundred and eighty to three hundred per second, thus emphatically disproving the contention advanced by certain advocates of the continuous current that one thousand volts of the alternating current would prove comparatively harmless, and that considerably over one thousand volts would be necessary to insure death. The time occupied had varied from ten seconds in the case of one dog to twenty-five seconds. As for the bodies of the slain, they so completely escaped disfigurement that the veal was perfectly suitable for human food, and it was returned to the butcher who had brought the calves to the laboratory.

New Process of Hardening Plaster of Paris.

The French Academy of Sciences, says *La Semaine des Constructeurs*, has just received a communication from Mr. Julte on a new process of hardening plaster so as to adapt it to the construction of flooring in place of wood, and to other purposes for which it cannot be used in its ordinary state on account of its want of hardness and resistance to crushing.

Mr. Julte recommends the intimate mixture of six parts of plaster of good quality with one part of finely sifted, recently slaked white lime. This mixture is employed like ordinary plaster. After it has become thoroughly dry, the object manufactured from it is saturated with a solution of any sulphate whatever whose base is precipitated in an insoluble form by lime. The sulphates best adapted for the purpose, from every point of view, are those of iron and zinc.

With sulphate of zinc, the object remains white, as might be supposed. With sulphate of iron, the object, at first greenish, finally assumes, through desiccation, the characteristic tint of the sesquioxide of iron. The hardest surfaces are obtained with iron, and the resistance to breakage is twenty times greater than that of ordinary plaster. In order to obtain a maximum of hardness and tenacity, it is necessary to temper the limed plaster well in as brief a space of time as possible, and with no more water than is strictly necessary. The object to be hardened should be very dry, so that the solution employed may penetrate it easily. The solution should be near the point of saturation, and the first immersion should not exceed two hours. If immersed too long, the plaster would become friable.

The proportions of the lime and plaster are arbitrary, and may be varied according to the results to be obtained; nevertheless, the proportions of one to six have given the best results.

As it is important that the plaster should not be spread over the surface by passing and repassing the trowel for too long a time, the fastest workman will always be the best one to employ. When sulphate of iron is used, the slabs are of the color of iron rust; but if linseed oil boiled with litharge be passed over the surface, they assume a beautiful mahogany color, and offer a certain superficial elasticity to the tread. If a coat of hard copal varnish be added, the color becomes very beautiful.

On spreading a two or three inch layer of limed plaster in a room, and treating it in the way above described, we obtain a floor which is as smooth as a mirror, and which, in most cases, fulfills the office of an oak floor, but which has the advantage over the latter of costing four times less.

Acrophobia.

Among the many curious psychical experiences that are now attracting attention, the one to which the term "acrophobia" has been applied has many points of interest. It refers to an exaggerated condition of fear when in high places. Dr. Verga has recently described the phenomena in his own case. Though by nature not at all timid, all his courage leaves him when above ground. He has palpitations in mounting a step ladder; finds it extremely unpleasant to ride on top of a coach, or even to look out of a first story window. His idiosyncrasy forbids him to use an elevator, and the mere thought of those who have cast themselves down from high places causes tingling all over his person. The thought of the earth spinning through space is enough to cause discomfort. He finds this fear growing upon him as sight and hearing become less acute, and what walking in high places was formerly possible for him is getting more and more difficult. A greater or less degree of this fear is undoubtedly quite common. A very intense form of it seems perfectly consistent with normal functions.—*The Polyclinic*.