

Correspondence.

Mr. Dueberg's Theory of the Moon.

To the Editor of the Scientific American:

Whatever merit Mr. Dueberg's "new theory of the moon" may have, as mentioned in your paper of July 1, his method of illustrating it is certainly curious. To quote from the article: "Supposing the moon to possess air and water, these lighter and more fluent elements of her composition would of necessity lie on the further side." For a practical illustration of this view, Mr. Dueberg suggests "a ball swinging in a circle by means of a cord; and if it be dipped in any liquid, the liquid will be rapidly accumulated on the opposite or outer side." Mr. Dueberg subjects the ball to the restraint of centripetal force—the string. He should subject each atom of water to the same restraint, and then see if it will go on the outer side.

Water on the moon is surely subject to the earth's attraction. It might be suggested to Mr. Dueberg to use a hollow ball filled with liquids of different densities, or with a liquid and a gas, and see if the lighter of them will get on the further side when swung around.

It may be that if the moon were falling toward the earth, Mr. Dueberg's fluent substances might get on the further side of the moon, but it appears to the writer that he would have to have a retarding medium to accomplish that feat.

MONROE McCARTY.

Hot Springs, Ark., July 7, 1882.

Noiseless Alarms and Noiseless People Wanted.

To the Editor of the Scientific American:

There are many who work twelve hours per day, changing at midnight; and as far as I am acquainted with this kind of work, they depend upon some one to wake them at the right time. So, at midnight, the "caller" will stand near the window of the sleeper, and call loud enough to rouse the sleepers for a block all around. Besides this, the cook in every boarding house must get up early to prepare the breakfast, and by the time the noisy cistern pump has sounded, and the noisy alarm clock, and the noisy calls for John or Mary, with the many other sounds, the weary ones who have only slept two hours are robbed of that which is to them very life.

Now, it seems to me, if we had a silent alarm clock to set at the head of the bed, with a string to reach from the clock to the hair of the sleeper, and fastened with a pin, then a ring to be loosened by the clock at a given hour so as to slide down on the string, this would wake up the early riser without a sound; or a watch might be made with a hammer to strike out of the case, so that the watch might be placed with the hand in a glove, and when the hour arrives the hammer would strike the hand, and awake the sleeper. But how to make a noiseless cistern pump I do not see, nor do I see how Sally Ann, the cook, and John, her helper, can be improved so as to keep absolutely still. The fact is, our scraps of time are so valuable to somebody, and our habits so different, it is a sore puzzle to invent a universal crank to fit every case. I give it up, but hope some inventive Yankee will see the "pint," and help us lazy, sleepy ones, who are much in need of help. We want a noiseless alarm clock, and a noiseless pump, and noiseless cooks, and noiseless neighbors, etc., for which we are willing to pay a reasonable price to any inventor who can get a patent.

T. O. B.

Rockton, Ill., July 11, 1882.

RULES IN THE CUTTING OF UPPERS.

BY A PRACTICAL WORKMAN.

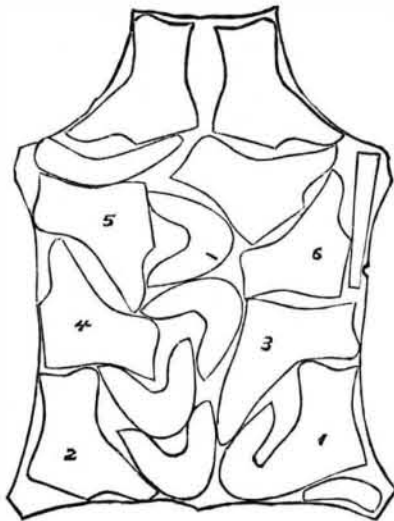
Rules or theoretical truths imply perfection in the materials they are applied to or embodied in, and all imperfections require them to be more or less modified to adapt them to the material. In the application of rules to the cutting of uppers, then, we must assume that skins will be perfect—free from spots, wrinkles, ruts, damages of every kind, clear and clean, at least comparatively. These we proceed to cut up in a certain regular way, which allows of very little waste. The waste, indeed, is reduced to its very smallest quantity, and so to lay on the patterns that this will be accomplished is the most difficult thing to be done. Not, however, that the thickness, firmness, or fineness of the skin in different parts is to be overlooked, for such stock is supposed to be cut into goods of the first quality, and fineness and coarseness, thickness and thinness, firmness and looseness must each go into its proper place in the upper. The finest and firmest part of the skin is along the middle, from the butt to the neck; the heaviest part in the neck, and along the side, half way between the skirt and the backbone; the thinnest in the flanks and shoulders. The heaviest or thickest part of the fine stock should go into the vamp or front part of the shoe, where the most service is required; the heavier part of the coarse into the bottom of the quarter for the same reason; the lighter and looser part into the top of the quarter or leg; while the finest and smoothest or best-looking part of any piece, should be where it will be most exposed to observation when worn. The skin stretches most in a crosswise direction, and this stretchiness, what there is of it, must, in the quarter, extend up and down the leg, not lengthwise of the foot.

Bearing these things in mind, and supposing that the

upper is to be cut in quarters and vamps, we first, if it be a good-sized skin, take off a row of quarters along the side; then a row of vamps, following one another from the butt to the shoulder; next another row of vamps following, if, in that way, they leave just width enough at the other for a row of quarters; if not, they are turned in any direction that will best take up the space, along with a row of quarters on the further side. Frequently, it is easiest to turn the skin half way round, so as to cut the middle and remaining side together from the butt toward the neck. The neck is worked up into the wide quarters of a button-boot, these requiring to be thicker than the narrow ones, while the remaining part of the shoulder and the corners go into narrow quarters or button pieces. Some part of the neck may have to be left as too coarse, and perhaps some of the quarter or button pieces will finish up a remnant too small for any of the set of patterns used.

With patterns of a different shape, we still have to arrange them in a way to bring the toe part into or toward the middle of the skin, and the back toward the side, or turned in such a manner that no stretchiness will come in the forward part. A diagram will make the matter plainer than words.

Our pattern proves too large, or the skin too small, to show just what we first intended, but it happens to be of the right size to illustrate several things in one diagram. Nos. 1 and 2 show how patterns may be turned crosswise of the skin at the butt, where there is commonly very little stretchiness. Nos. 1 and 3 show how other patterns than quarters may be placed; Nos. 3, 4, 5, and 6 represent the



usual manner of taking out quarters along the side; while the two wide quarters in the neck may be taken out in the way represented when the stock is firm; if not, they must be turned with the foot, part lengthwise or diagonal of the skin. Two of the vamps follow, while the other two illustrate the liberty of placing them in any manner that may be necessary. The unoccupied strip through the neck represents a part that in India goat and kid skins is too weak to be cut across without danger, though in Tampico and Curacoa skins it is much stronger. No. 6 is a smaller-sized pattern, of the same kind as the others of that shape, used to fill a space too small for one of the larger ones. The little button-piece and tongue are, like Nos. 1 and 3, strangers to the other patterns, and brought in to fill out the remaining corners of the skin.

Few skins will cut up with as little waste as the one here represented. Even if there are no damages in them, there may be extreme thinness of the flanks, or coarseness of the neck, that cannot be worked into first-quality goods, such as are usually cut from clear stock. Wax calf and calf kid skins always have more of this kind of waste, and it is more difficult to turn the lower part of a quarter into the skirt along the belly.

In the diagram we have used women's patterns, but men's, boys', misses', or children's would require no exception to the rules, nor any different distribution of the parts of the skin. Neither, it is obvious, does a half skin—a side of grain leather, kip, or split—demand any variation. There is only more surface and opportunity in the better portions to turn patterns in a variety of ways, when advisable, or to follow out a systematic method.

Every new or different form of pattern, however, makes it necessary to study out a new arrangement to some extent, and some little experience, to ascertain what method of placing the patterns will give the best results, though not in a manner to violate any of the acknowledged rules.

The objects to be kept constantly in view are four, namely—first, to cut stock economically, or so as to obtain the greatest number of uppers from a given amount; second, to put the strongest part of the material into that part of the upper most exposed to strain in wearing; third, to put the finest or handsomest portion into the part most exposed to view when on the foot; and fourth, to so cut the material that the stretchiness of it will do the least harm.

With good stock, a regular method of placing the patterns can be studied out and closely followed, while fulfilling all these requirements. With poorer stock, we can only do the best the conditions allow.—*Shoe and Leather Reporter*.

A Cheap Electric Pile.

Mr. Alfred R. Bennett, engineer for Messrs. D. & G. Graham, of Glasgow, read before the Philosophical Society of Glasgow, on the 7th of February, a very interesting note on a new pile invented by him.

This pile is composed of an iron vessel (enameled or not), of a porous cup, and of a strip of zinc. The space between the iron vessel and the porous cup is packed with iron in small fragments, such as lathe turnings, and the porous cup is filled with a solution of caustic soda or potash.

The idea of this combination is based upon the well-known fact that iron does not rust in solutions of the caustic alkalis; and experience has shown that if a strip of iron and one of zinc are immersed in such a solution the iron becomes strongly electro-negative with respect to the zinc. It is the same with silver and gold and the metals belonging to the platinum group.

Primarily carbon is slightly more electro-negative than metals with respect to zinc; but all such superiority soon ceases on account of the absorption of hydrogen by the pores of the carbon. Iron offers peculiar advantages. It is very cheap, and its solidity permits of attaching the connecting terminal, which is something that cannot be done with carbon. It has been found, however, that an iron plate becomes rapidly polarized, because the hydrogen which is disengaged attaches itself to it and greatly increases the resistance. This difficulty is overcome by the use of small fragments of iron, because hydrogen disengages itself therefrom more readily than from a continuous surface. In order to facilitate such disengagement it is necessary to have care that the fragments be only wetted and not immersed in the solution; then the pile acquires to a high degree the faculty of preserving its electromotive power while working continuously under a feeble resistance. Under a resistance of twenty ohms the pile remains quite constant, and resumes, through rest, its electromotive power rapidly enough to permit its being employed on the most active telegraphic circuits, and for the majority of practical purposes.

This electromotive power varies with the nature of the iron, the purity of the solution employed, and the degree to which the iron is moistened by the solution.

The electromotive power of a Daniell pile being 1, that of a Leclanché is, at the most, 1.30, and that of an iron pile varies from 1.15 to 1.33. This latter figure is exceptional, and 1.23 must be taken as the mean.

Mr. Bennett's pile has given good results in the experiments that have lasted for several months.—*Revue Industrielle*.

The Symptomatology of Bright's Disease.

M. Dieulafoy lately called attention to certain symptoms of Bright's disease (parenchymatous and mixed nephritis) of which too little notice has, he thinks, been taken. The most important of them is frequency of micturition, a symptom which, although frequently associated with polyuria, may exist independently of any increase in the quantity of urine. In some cases the symptom is very troublesome; the bladder has to be emptied twelve or fifteen times a night, and twenty or twenty-five times in each twenty-four hours, and this although the total quantity of urine may not amount to a pint. This symptom Dieulafoy proposes to term pollakuria, and it may be manifested in three forms:

1. An early form may attend the commencement of the renal disease, of which it may be indeed the earliest manifestation and of considerable diagnostic significance.
2. A late form, which attends the chronic stage of the disease which has commenced acutely.
3. A form in which the symptom is attended with great pain and distress, and is accompanied by tenesmus and spasm of the sphincter ani, lasting from three to eight minutes.

Another symptom is irritation of the skin. M. Dieulafoy asserts that it is met with in one-third of the persons suffering from "albuminous nephritis," whether interstitial, parenchymatous, or mixed, and that it is especially frequent in women. This symptom is also met with in different forms. Sometimes it has the character of ordinary pruritus, and may be thus the initial symptom of Bright's disease, preceding for months any other inconvenience. It has been explained by uræmia, and has been attributed to an excretion of urea by the skin, but in one of his cases the symptom was not present, although a large amount of urea was excreted by the skin. In other cases the itching is much slighter, and is described as resembling the sensation produced by the contact of a hair with the skin.

The last symptom to which attention was directed is that which is described by patients as the "fingers going dead." It is a sensation of formication or cramp, accompanied by such pallor that the part looks altogether exsanguine. It may last half an hour or so, and then disappear entirely. Rarely both hands are affected, and when it is bilateral and partial the area is always symmetrical on the two sides. It appears to be due to a true vaso-motor disturbance.—*Lancet*.

Poisonous Washing Compounds.

Several cases of distressing if not dangerous poisoning by the use of compounds for lessening the labor of washing clothes have occurred recently among New Jersey laundry workers. The *National Laundry Journal* says that the State Board of Health are about to make examinations of the suspicious preparations, intending to prosecute manufacturers where dangerously poisonous properties are discovered.