

der to produce this beautiful parchment-paper, you must take exactly two measures of strong oil of vitriol—sulphuric acid—and one measure of water, and mix them together. They first become heated, and you allow them to cool; and after they have cooled to the ordinary temperature they are ready for use. Nothing is more simple. The best paper for this purpose is that which has been well pulped, or well disintegrated in the making. The conversion of it into parchment paper is an exceedingly simple operation. I now place it in ammonia, which takes away the acid, and there is the parchment paper completed, so that you see nothing is more easy. What have I done? Although I have effected such a transformation in the paper that it is now much stronger than it was before, yet we have added actually nothing to it. The acid has not entered into its composition. It is the same weight after it has dried as it was before. It is simply a molecular change which has occurred in the character of the paper, the pores of the water-leaf having become closed, and it is now repellant of water. It is a semi-transparent body with great elasticity. You can bend it backward and forward without cracking, and the strength of it is much increased. It is repellant of water, but it allows some fluids to pass by a process of diffusion; and when it is stretched upon a sort of drum, or a sieve frame, or wooden circle, it forms an instrument, which, in the hands of the Master of the Mint, has produced that elegant process of separation, of diffusive analysis, which he has called "Dialysis." The strength of the paper is so much increased by this operation of simply subjecting it to the action of the acid, that a strip of paper which requires sixteen pounds weight to break it when it is in the state of the water-leaf, requires seventy-five pounds to break it after it is passed into the other state. This property of sulphuric acid with regard to paper was discovered in 1854 by Mr. Gaine; but it was not until some years afterwards that Mr. De la Rue, by extensive experiments was enabled to form parchment paper as a commercial article, and it is now used for a great many purposes. There are some deeds written upon it. And it is now extensively used by ladies for covering preserve-jars, and is used for a great many other useful purposes.

Bank-Note Splitting.

Mr. Thomas Millard, a native of Bath, now one of the Queen's book-binders, under the librarian at Windsor Castle, has discovered a method of splitting bank notes or any other sheets of paper. By the courtesy of Mr. Gregory, of Bath Street, with whom Millard served his time as an apprentice, specimens of the young man's ingenuity, consisting of a 5*l*. Bank of England note, a sheet of the *Times*, of the *Illustrated London News*, of the *Bath Journal*, and of the *Daily Telegraph* each of which has been split cleanly and cleverly into two parts, without any rent or tear, have been exhibited to many of our fellow-citizens during the past week. There can be no mistake about the matter, as we have now before us a copy of a leaf of our own *Journal* completely split in two. The separate parts could well be printed on at the back, but the separation of the flimsy paper of the *Telegraph* seems equally complete. The engravings in the illustrated journal are brought out more clearly by the process,

and when mounted on cardboard present a strikingly improved appearance. The discovery is applied by Mr. Millard to practical use in print-mounting, and in repairing torn leaves of books, which he can so skillfully manage that the junction of the new and old can with difficulty be distinguished. The mounting of old prints upon paper is also so complete, that the specimens we have seen seem impressed upon the original paper. Unscrupulous people would certainly turn this plan of bank-note splitting to profitable account, if they could find it out, inasmuch as the halves could be made as stiff as the whole, the blank parts could be printed in imitation of the original, and the water-mark would of course be perfect. A cotemporary says that "Mr. Millard has devised a method of manufacturing paper that cannot be split, and bankers will probably soon be compelled to make use of his invention?" but this we understand is a mistake. Mr. Millard, to prevent the difficulty which might arise to the bank of England for having their water mark left on blank pieces of paper, upon which might be printed *fac similes* of their notes, suggest a plan for the prevention of the fraud. We are glad to hear that Her Majesty, in consideration of the talent displayed by Mr. Millard in this discovery, has already been pleased to order that he should have an increased salary. We hope his discovery may further lead to his pecuniary advantage.—*Keene's Bath Journal*.

Porous Water-Proof Cloth.

This quality is given to cloth by simply passing it through a hot solution of weak glue and alum. This is what is done by paper makers to make writing paper, the very thing which constitutes the difference between it and blotting paper, only on cloth the nap like the fur of a beaver, will preserve the cloth from being wet through as the rain will not adhere but trickle off as soon as it falls, and moisture will not adhere at all.

To apply it to the cloth, make up a weak solution of glue and while it is hot add a piece of alum, about an ounce to two quarts, and then brush it over the surface of the cloth while it is hot, and it is afterwards dried. Cloth in pieces may be run through this solution and then wrung out of it and dried. By adding a few pieces of soap to the glue the cloth will feel much softer. Goods in pieces may be run through a tubful of weak glue, soap and alum, and squeezed between rollers. This would be a cheap and expeditious mode of preparing them. Woollen goods are prepared by brushing them with the above mixture, first in the inside, then with the grain or nap of the cloth, after which it is dried. It is best to dry this first in the air and then in a stove room at a low heat, but allow the cloth to remain for a considerable time to expel the moisture completely. This kind of cloth, while it is sufficiently waterproof to keep out moisture and rain—being quite impervious to water—is pervious to the air. Many fishermen know that by boiling their pants, jackets, nets and sails in a pot with oak bark and fish skins, and afterward drying them, they become waterproof. The composition mentioned above is of nearly the same nature as the fish glue and oak bark, and consequently the same effects are produced. The composition is stated to be improved by adding