many substances; and, perhaps, some of my lady hearers will not quite thank me for the information which I am going to give. It is interesting, nevertheless. After garments have been worn and have gone through their common use and wear, they are by no means useless. They possess still a high money value; and these woollen garments, these clippings of the tailor, old rags, and old worn coats, when we have done with them, are all cut up, and torn to pieces. They have a little oil placed upon them, and are blown through a blower to get them into a fine state of division; and then they are sold as wool under the name of "mungo," or of "shoddy." Now, this is sold at about one-third the price of ordinary wool. The wool obtained in this way by breaking up these old rags is sold at from sixpence to a shilling a pound, and it forms excellent cloths. For instance, those light ladies' cloths which they wear as mantles are almost all made from these old rags. This cloth here, for instance, is made from these old rags. It is also used extensively for mixing with wool, because it gives a greater lustre and a certain fineness to the cloth ; and therefore it is often used for mixing in ordinary woollen cloths. The coarser varieties are used for druggets and other purposes ; but it is all used up. There is a portion of it which becomes waste, which will not make good wool. This, for instance, is the mungo waste, as it is called, which cannot be worked up into a cloth; but it is only waste as regards cloth-making. This waste is powdered and dyed with brilliant colours, and is then made use of for making flock-paper, such as we have in our ordinary apartments. For that purpose the paper is printed in a pattern with gum or with size. This powdered waste wool which has been dyed and prepared is then sieved over the paper, and it sticks where the gum or size has been printed on. In that way it forms the ordinary flock-paper.

Muslin-de-laines.

As long ago as 1834, in the cotton districts they learnt how to put a cotton weft with a woollen warp. The cloths thus produced were finer in texture and cheaper than the woollen cloth, and therefore there was a great demand for them. It was, however, scarcely worth while to take these muslin-de-laines as rags after they were worn out and economise them. The reason of that was, that you had two fibres of different kinds, one of wool and one of cotton, and you had to sacrifice one in order to get the other. For instance, if you desired to get the wool, you steeped the muslin-delaines in acids, and converted the cellulose or woody fibre of which the cotton consisted into sugar, and the cotton being converted into sugar was lost, but the wool was obtained and used. If, on the other hand, you wanted to save the cotton of this mixed fabric, you dipped the material into an alkali and dissolved the wool. The alkali did not dissolve the cotton, but the wool, being dis-solved, was separated from the cotton, and the cotton was saved. Now, Mr. F. O. Ward has shown in the Exhibition a pretty process for econ-omising both fibres, or at least for getting a chemical product from both fibres, and it is very simple. Here are the rags as they are presented-the rags containing both of the substances-cotton and wool. They are subjected to a current of steam at three

or four atmospheres—that is to say, hotter than ordinary; and when this heated steam passes through the rags it converts the wool into a sort of bituminous or resinous matter which becomes brittle. There is a portion which has been acted on by the steam. I agitate it, and the wool separates as a powder, and the cotton is as firm and as strong as it was before. All the wool has gone away from, it, because it has been converted into this resinous substance. When this wool becomes dry, it can be separated by a kind of combined beating and sieving process; and now there remains the cotton. The cotton in this state is sold as ordinary cotton rags to the bleacher who bleaches it, and is converted into paper. There is some paper made from the cotton rags bleached in this way. This substance which I have shaken off here, and which has come upon this paper, is the wool, and is still valuable. It contains 12 per cent. of nitrogen, and therefore is in a condition which makes it a good manure, and it is sold as such under the name of "ulmate of ammonia." I ought to tell you that the woollen rags are never too waste to be converted into manure. All the early broccoli which comes up from Cornwall is forced on by being manured with these woollen rags.

Prussiate of Potash.

Attempts have been made to improve the manufacture largely, but without any great success. Still, it is such an interesting application of the waste substances which contain nitrogen, that it would not do to passit over in a lecture upon waste In the making of pru-siate of potash, materials. almost all the things which are too waste and too rafuse to be employed for the higher purposes of waste substances, such as I have shown you there, as cloths and paper hangings, are employed for making this salt. For instance, the horns of cattle, the hoofs of cattle, clippings of leather, the cast-off woollen garments of the Irish peasantry, and all sorts of things which are refuse, are mixed up with pearlash, or carbonate of potash, which, you know, comes from the ashes which remain after the combustion of wood, and with old scraps of iron. Old iron hoops from beer barrels, broken hoops, iron nails, old iron horse-shoes, or any old scrap iron which can be obtained, is mixed up with this refuse, pearlash, blood, and other substances, and they are all fused together in a pot, and after they are fused in this way they are dissolved out in water, and then they are transformed from their ugly primary condition to this beautiful salt, which is yellow prussiate of potash. It is a cyanide of iron and a cyanide of potassium. The nitrogen combines with the carbon and forms cyanogen; and then the cyanogen combines with the iron and the potassium, and forms this prussiate of potash. This salt is very extensively employed, because it is the source of Prussian blue. I have here a so-lution of iron rust which I add to this solution of the yellow salt. You see immediately that a copious precipitate of Prussian blue is producedthat beautiful colour which we employ so extensively. Now, if you pass chlorine through yellow prussiate of potash, you remove one equivalent of potassium, and then you get this other salt, the red prussiate of potash, which, though it differs from the other merely in containing one equivalent of potassium less, yet is changed in its chemical