

water passing through. The shadows in the negative being represented by transparent patches of glass, the light has worked through here, and the result is that the gelatine film is, after washing, all over prominences, these prominences being the shadows; and they are more or less in relief according as the shadows were deep or otherwise, or according, as we have said before, the glass negative was more or less transparent. These gelatine impressions are permitted to dry upon patent plate glass so that they may be perfectly flat, and are further toughened with alum. Stripped from the glass when dry, we have a perfect mould, in which the shadows are represented by prominences, and the lights by hollows.

Now comes the production of the metal plate, which is taken from this gelatine mould. There are two hydraulic presses in this room for pressing the gelatine mould against a sheet of lead; one of the presses is capable of exerting a pressure of 150 tons, and the other, which is employed for pictures up to 14 inches by 10, is equal to giving a squeeze of 500 tons. It is the necessity for having these presses which evidently stands in the way of Woodburytype becoming vulgarised; that is to say, photo-relief printing is of itself such an elaborate industry, and requires such expensive apparatus, and withal the employment of so many skilled hands in the one department and another, that unless a photographer sees his way clear to issue hundreds of thousands of prints, it would never be worth his while to take up with the process; at any rate, not until some more inexpensive means of securing the metal printing plate is devised, is the portraitist likely to turn his attention to photo-relief printing.

Pure lead is employed for securing the counter-mould of the gelatine film, the lead being rolled into plates. A steel plate serves to rest the gelatine mould upon, and this steel plate forms, as it were, the bottom of a tray, the sides of the tray being sharp knife edges. The reason of this tray-like formation is soon evident. The gelatine mould, as we say, is put upon the steel bottom of the tray, and then a sheet of lead, larger than the tray, is put upon it. When subjected to pressure in this way, the knife edges cut the lead, and the latter thus accurately and entirely fills up the tray. The gelatine film cannot escape the pressure, because of the steel plate below, and the consequence is that the lead is pressed into every detail of the gelatine, and these details cannot spread, because the tray is completely full of metal. The consequence is, that the comparatively frail gelatine impressions the metal plate with its likeness. The pressure is so evenly and skilfully managed, that they say a fern leaf can be put in the tray and pressed; and the fern leaf, soft and yielding as one might suppose, is still capable under the circumstances of impressing its form on the metal.

We have in the lead plate an engraving in which the shadows are now represented as deep hollows, and the high-lights by prominences; indeed, the deeper the shadow in the original photograph, the deeper are the cavities. We now proceed to another room to see the process of printing from these metal plates. There is a printer at each table; the table revolves on a pivot, so that he can bring under his hand, one after another, a series of printing presses, of which there are seven to each table, fixed round the margin. The process of printing consists in the fact that you employ a dark transparent ink, and the thicker the layer of this ink upon paper, the blacker it appears. The printer opens one of the presses, and you see, face upwards, the metal plate; he pours a little pool of the warm gelatinous ink upon the plate, claps a sheet of white paper on the pool, and then, with a turn of the handle, makes the paper press down upon the plate. The result is that the superfluous ink is squeezed out, and when you open the press again presently, there is an image made up of ink of different thicknesses. The hollows in the plates have permitted a good deal of ink to remain, thus representing the shadows of the picture, while in the lights nearly all the

ink has been pressed out, and in these portions the paper is white—or almost white.

As we have said, each printer stands before a round table that revolves. He has seven presses to attend to, and inks them one after another; a minute, or rather more, is consumed at each revolution of the table, so that the gelatinous ink of each picture has this time to set. They are printing a portrait of Miss Genevieve Ward at this table, as she appears in "Forget-me-Not," at the Prince of Wales's; it is for a coming number of the *Theatre*. The printing goes on very fast; a wine bottle, kept warm in a water-bath close by, holds the ink, and from this it is poured upon the shining metal. There is a dirty pool of liquid, and a white sheet of paper clapped upon it; a turn of the press, and the moment afterwards the pool and the paper are converted into four Miss Genevieve Wards, all looking as stern as stern can be, but as fresh and perfect as a clean silver print. The inking goes on, the table revolves, and the Miss Genevieve Wards accumulate, until a boy carries them off to a canvas tray to dry, of which there is a perfect stack in the department; 30,000 cartes can be here printed in a day.

Only the purest pigment obtainable—Indian ink—can be employed in the printing of Woodburytypes, for accidental particles of pigment, however small, would ruin the pictures if they appeared in any of the high-lights. The process, so far, looks simple enough, but in practice there are many difficulties to contend against. The matter of securing perfectly good prints depends upon the printing surfaces being perfectly flat. Any unevenness of the paper is enough to spoil the picture, for as the printing is simply the accurately pressing out of superfluous ink between paper and plate, if these are not both perfectly level, one side of the print will have more ink than the other, and hence the picture will be dark on one side and light on the other. Great care is, therefore, taken to flatten the paper used in printing. It is pressed between steel plates, and, moreover, varnished and gelatinized to prevent the ink subsequently being pressed into the pores of the paper, for the Woodbury print, to be successful, must be a true surface print.

In other rooms, the drying, aluming—for the gelatinous picture requires to be tanned to render it permanent—sorting, flattening, and mounting take place. The Woodbury Company gives employment to something like sixty hands, and this number will soon be further increased, for the managing director, Mr. Whitfield, contemplates extending his carbon tissue manufacture, and having an electric light, with suitable engine on the premises, for helping in his work. The Company appear to do anything and everything in connection with photographic printing. From Mr. Whitfield's well-known work "Men of Mark," down to all sorts of advertisement and show-cards, executed in thousands, for wholesale houses, the Kent Gardens establishment occupies itself. Here are pictures of rifles, fowling pieces, vases, shirt-fronts, fenders, fire-irons, neck-ties, pianos, &c.—photographs produced by the thousand. We peep into the glass house for a moment, and cannot repress a momentary shudder at the uncanny appearance that meets the eye. First of all, it looked like a group of personages perfectly immovable; then it resolved itself into so many heads, hanging lifeless, a sort of Blue Beard's chamber, and it is only on a second glance that we perceive it is but a collection of head-dresses, with no heads in them at all. Our guide evidently notices our scared look, for he says: "Oh! that's nothing; we had a hearse here yesterday."

The Woodbury Company are famous, as everybody knows, for their transparencies for the lantern; but the season for these is now over. Photographers frequently send a whole series of negatives to be made into lantern slides (sufficient for an hour's lecture or entertainment), and during the autumn and winter months work of this kind is one of the Company's chief occupations. The