

which, mingling with albumen, coagulates it, and at the same time fixes the gold with more certainty and with tenfold better results in brightness and solidity of impression than when the requisite above mentioned is absent.

One of the most commonly known helps to finishers of previous times, as well as the present, is urine, and its introduction into the finisher's art seems to have originated from the manufacturers of leather, who, to a certain extent, still employ it in leather manipulation. Fresh urine when compared with old is less satisfactory in effect. It is only when kept for some time, and after fermentation has commenced, that it begins to acquire the properties for which it is valued. In this state it has long been known by tanners as "sig," and also by finishers, while in textile manufacture it is named "lant." Among other things urine contains urea, and when fermentation takes place this urea is changed into carbonate of ammonia, which, remaining in the liquor, communicates to it its alkaline properties, and the discovery of this may be suggested as one link toward utilizing a limited portion of liquid ammonia with albumen as a beneficial factor in finishing.

It is acknowledged that the best possible condition of all leathers for finishing is the day following the application of the leather to the books; but even in this case it is not always safe to proceed without the aid of some additional preparation beyond paste wash and glair, for, without this precaution, the work taken along at any given time must be very limited in extent. What is wanted is some liquid that will extend the time in the finisher's favor, rather than limit it to a few hours; therefore it is advised to apply clear urine, and afterward a weak solution of oxalic acid, followed by a thin paste wash and two coats of glair, and heat sufficient to secure brightness and permanence upon the material used.

## Some British Binderies.

NO. I.—MESSRS. W. & R. CHAMBERS.

CHANCING to be in Edinburgh, I took advantage of my stay to get a glimpse at the old-established house in High Street, where the various works of this firm are printed and bound. In itself the stone building, raised on the sloping side of the rock on which the old town is built, is a monument of patient persevering industry and enterprise, for few employers in the trade have risen from such small beginnings to such a proud position as that held by these pioneers of cheap healthy literature.

Mr. W. Chambers has aptly described his own position in 1814, when he was thrown upon his own resources as an apprentice to a bookseller at four shillings a week, as being "a hard, but somewhat droll scrimmage with semi-starvation," and even at the close of his servitude he was only earning the meagre sum of five shillings. Yet, with but a week's wages in his pocket, he obtained a stock of books on credit to the value of ten pounds, and having built for himself a small stall in Leith Walk he boldly set up in business on his own account. Not satisfied with his fairly satisfactory success he next ventured on a small printing press, which, with a quantity of well-nigh worn-out type he purchased for three pounds, and turned out a small edition of Robert Burns' songs, binding in paper boards the copies he had struck off with his creaking machinery. After severe struggles in conjunction with Robert, which

resulted in the break down of Robert's health, William in 1832 started the *Chambers' Journal*. The success was enormous: in a few days the sale was thirty thousand, and shortly afterwards it rose to fifty thousand. Fortune smiled on the adventurous effort, and Robert, who had held aloof from this last venture, seeing its success, joined his brother on the issue of the fourteenth number.

The success of the Journal laid the foundation of the present large business establishment. Everything needed was done on the premises of the firm if possible, the profits being carefully husbanded for the purposes of the undertaking, and the proper expansion of the business followed. A strict rule was laid down never to give bills, but to pay for everything cash, and this rule is now strictly adhered to. The effect of these wise and thrifty methods has been the marked success of the firm, and the continuous employment of their servants.

In the front of the spacious building on the ground floor are the office and counting-houses; on the upper floors, the editorial rooms and apartments for the many literary men engaged. The entrance for workpeople is down one of the "closes," which form so special a feature of the old town. In this rear part of the building are the composing, electrotyping, stereotyping, roller-making departments, and all the various adjuncts of printing, steam being used throughout the whole building, and in some cases the machinery has been specially devised or improved by their own workpeople.

Adjoining are the Binding Shops. The females have a very light and well-ventilated oblong room, where about eighty were at work at the folding, sewing, &c. There are two Martini double-folding machines, and two Louis Simon single-folders, one Brehmer sewer, two Smyth sewers for tape, and one larger Smyth for sewing on cord bands, but the better work is folded and sewn by hand. For the pamphlet form of work there are two Singer machines, which stitch the sheets together after the style of stabbing.

The case making is done by women, some twelve or fourteen being the number required normally, and the cases are all rolled down with rubber rollers; the boards are cut by a Summerville and Crombie Circular Board Machine.

The cutting is done by a Summerville and Crombie Automatic Self-Clamp, which was severely tested in competition with those of other manufacturers at the Glasgow Exhibition, and which cuts with great precision, or by smaller machines, no inboard work being done.

Blocking is executed in Imperial presses and a Richmond's Gough, while the inked work in various colours, so prevalent just now, is done on a Gough. Girls do the laying on.

The great bulk of the work turned out by the firm being cheap educational books, is of course cloth, but many of the Encyclopædias, and Book of Days are better bound, but since the firm do only their own work they employ but a small percentage on leather-bound books.

Altogether there are upwards of two hundred employed in the binding departments of Messrs. Chambers, many of whom have been in the service of the firm for a goodly number of years, three or four having completed their jubilee in the establishment. This speaks well for the healthy character of the workshops and the conditions of employment generally.

In conclusion, I cannot but thank the managers for the courtesy with which I was treated, and the painstaking efforts to make my visit a profitable one.