

and Heath's method, by which one process of engraving suffices for an unlimited number of impressions, by a transfer of the device from hard to soft steel. There are Mr. Oldham's numbering machines, as used at the Bank of England, whereby bank-notes may be numbered consecutively with unerring accuracy and great facility. There is a method, patented a few years ago, but not (so far as we are aware) yet acted on, for a very peculiar mode of printing bank-notes; a groundwork of geometrical figures is printed with an ink of a certain chemical character; another design, different from the former, is printed with a different colour, and the note is then printed with the usual entries—thus presenting many chemical obstacles to imitation or transfer. There is the United States' patent for bank-note paper, in which the number of threads introduced into each piece of paper is made in some way to indicate the number of dollars for which the note is current. There was Mr. Fisher's bank-note paper, shown at the Great Exhibition, prepared for receiving black letters on a neutral-tinted ornamental background, from which a signature in common ink could not be erased without changing the colour of the ground. There was Mr. Saunders's 'white and coloured safety paper' for bank notes, bankers' cheques, letters of credit, &c., capable of detecting the removal of writing by any chemical agent.

It is in relation to chemistry, or chemical affinity and repulsion, that we ought to regard the *Anastatic* printing which made such a commotion a few years ago. In 1841 the world was startled with this new art—this handbook of forgery or of stealing, as some would fain have deemed it; in 1851 we hear little of it. It is certainly a remarkable process, depending mainly on the antagonism of oil and water. A printed sheet of paper is moistened with dilute phosphoric acid, and is pressed on a clean surface of zinc; and by this contact the acid of the unprinted part *etches* the zinc beneath, while the printed part *sets off* on the zinc. There is thus produced a reverse copy of the printing on the zinc. The plate is washed with an acid solution of gum, and is then inked: the affinities in some instances, and the repulsions in others, cause the lines of the device (whatever it may be) to take the ink, but the other parts of the plate to remain clean; and the printing then follows. This *Anastatic* method of printing has gone a little, and only a little, beyond the limits of a manipulative curiosity. Mr. Cowell, of Ipswich, has published a 'Descriptive Account' of the process, with illustrative specimens and practical instructions. The claims put forth for the method are somewhat comprehensive; for it is averred that "designs produced either by the ordinary process of printing from types, copper or steel plates, wood, stone, &c., or by the manual operations of writing or drawing in prepared ink or chalk, may be readily transferred to the metal plate, and an indefinite number of copies produced, at a really trifling cost." The time has not arrived for determining the real commercial and artistic value of the art; yet a marked and distinct value it assuredly will have, for it is one of the most peculiar modes of *copying* ever devised.

*Photography* or *Daguerreotype* seems to belong so much more nearly to Fine Art than to the printing art, that its claim to a place in the present sheet is not quite indisputable; still, as we wish to show the bearings which the numerous family of 'graphs' and 'types' have one towards another, a few words relating to this curious art may be desirable.

To paint a picture by a sunbeam is certainly a beautiful art; but to give permanency to the picture has required all the resources of modern chemistry. Like every other art, the progress of improvement has been gradual, from small beginnings to splendid results. The old alchemists knew that certain chemical