

This system, by which the expense of frames, packing cases, and risk of breakage are obviated, has been adopted at the Bristol Academy Exhibitions for the past five years, and is found to work well. These exhibitions are by no means small affairs, if we may judge by the present one, where nearly one thousand sketches are shown. The only initial expense is the glass, laths, and cardboard for mounts. The cost of these items obtained from a wholesale firm could be readily covered by a moderate fee, which would be willingly paid by each exhibitor. The pictures could be sent by post unmounted, or mounted ready for exhibition on the regulation sized cardboard for a few stamps. Last, but not least, no space would be required at the exhibition rooms to store the mass of packing cases which always accumulates at such places. We shall be very glad to elicit opinions from all interested in the subject upon the reform suggested.

FEER'S DIAZO PRINTING PROCESS.

THE primuline printing process of Messrs. Green, Cross, and Bevan having excited so much attention, there is naturally a good deal of interest existing concerning the diazo process of Dr. Feer, especially as the latter is more in line with the printing processes in constant use amongst photographers in the matter of yielding a positive print from the negative. The two diazo processes will probably find somewhat different fields of usefulness, differing as they do in important characteristics. From the following account of Feer's process, contained in the specification of the German patent, it will be seen that there is no after-development required, the print showing itself like the familiar silver print whilst still in the press, and the only subsequent treatment required is the removal by washing of the sensitive compound not affected by light.

Process for the Production of Coloured Photographic Images.
Patented in Germany, December 5th, 1889.

The following process depends upon the fact, which the inventor has discovered, that diazosulphonic salts ($R-N=N-SO_3 Na$) with phenolalkali, and chlorides of or free aromatic amines, react under the influence of solar or of the electric light, forming an azo dyeing substance.

For carrying out the process, the inventor impregnates paper or textile fabric with a dilute molecular mixture of a diazosulphonic salt (for instance, of aniline, amidazobenzole, benzidine, and their homologues) and phenol alkalis (for example, phenol, resorcin, and β -naphthol) or chloride of, or free amines (aniline, naphthylamine phenylendiamine, and homologue). The paper or fabric is then dried in the dark, and exposed for about five minutes to the sun, or to the electric light. Thereby is formed in the illuminated portions an *insoluble* azo dye, whilst the parts protected by the opaque portions of the negative remain in their original colourless and soluble condition. The picture is thus developed while printing. It is, after exposure, washed with water, or with very dilute hydrochloric acid, whereby the unaltered sensitive preparation is washed from those parts not affected by light, through the negative. The picture is thus fixed, and only requires drying to finish it.

The following are some examples of mixtures with which the paper or fabric is treated:—

1.—Toluoldiazosulphonate of soda	...	25	grammes
β -Naphthol	...	25	"
Caustic soda	...	8	"
Water	...	1,000	"
2.—Ditolyltetrazosulphonate of soda	...	25	grammes
<i>m</i> -Phenylendiamine	...	8	"
Water	...	1,000	"
3.—Ditolyltetrazosulphonate of soda	...	25	grammes
Resorcin	...	22	"
Caustic soda	...	16	"
Water	...	1,000	"

The following examples will illustrate the application of ditolyltetrazosulphonate of soda mixed with resorcin and α , β -naphthol respectively, and phenylendiamine.

Preparation of the Solutions.

1.—Ditolyltetrazosulphonate of soda	...	30	grammes
Resorcin	...	20	"
Caustic soda	...	15	"

All, finely powdered, are dissolved by gentle heat in one litre of water.

2.—Ditolyltetrazosulphonate of soda	...	30	grammes
α -naphthol	...	25	"
Caustic soda	...	7	"

Dissolved in one litre of water.

3.—Ditolyltetrazosulphonate of soda	...	30	grammes
Phenylendiamine	...	20	"

Dissolved in one litre of water.

The solutions 1 and 2, or 2 and 3, may be mixed in equal parts.

The paper is impregnated with the above mixture, and then exposed for from ten to fifteen minutes to direct sunshine. After exposure, the picture is washed with very dilute hydrochloric acid, then with water, and finally dried.

Patent Claim.—A process for the production of coloured photographic images on paper or textile fabrics, consisting of the preparation of the material with an aqueous or alcoholic solution of a diazosulphonic salt and a phenol alkali, benzene, a chloride, or free amine; dried in the dark, then covered by a negative, exposed to the influence of solar or the electric light, whereby an insoluble azo dye is formed only in the parts affected by light, the picture being thus developed; and, finally, the preparation unaffected by light is washed out with water or dilute hydrochloric acid, and the picture is thus fixed.

SUBAQUEOUS PHOTOGRAPHY.

SUBAQUEOUS photography of different kinds has occasionally attracted attention upon the Continent, and one of the latest applications of it has been the photographing of the movements of fish by means of a number of rapid successive exposures; this work was done in an aquarium, with the camera outside and the fish inside a glass tank. The Swiss have, some years past, devoted occasional attention to subaqueous photography, and one plan employed was to put a camera inside a small but heavy iron stove made water-tight, and with a plate of glass cemented in the round hole in the top of the stove for stoking. Probably, with a special camera resting on the river or sea-bed, and with its shutter and movable portions actuated by