

bility is only partly lost. The soluble bichromate salt has been removed by washing, and there remains a non-affected bromide of silver film in the form of a latent picture. To render this visible is the next move, to accomplish which the film is exposed to diffused light, and then treated with developer. In this way a negative is obtained from a negative, a positive from a positive. To carry this operation through with uniform success, Balagny lays down very positive rules. He says the washing dish must be absolutely clean; the slightest trace of developer causes stains. The film must not be touched with the hands. The plate-glass is to be thoroughly cleaned; a strong stream of water is passed over it, and the film, face down, placed upon it. All air-bells between film and glass are removed with a squeegee; a piece of black paper, soaked in water, is now placed over the film and squeegeed till not a bubble is visible. This is important. The front of the plate-glass is now wiped; it must be perfectly clean. The plate is now exposed to diffused daylight for from two to five seconds, according to the strength of the light. The black paper backing excludes, according to Balagny, all possibility of fog formation, quite common with this process from over-exposure, and the whites remain perfectly pure. Of course, as stated, the plate must be perfectly clean, as any adhering drops of water or impurities would be rendered in the copy. The film is removed from the plate in the dark room, and rinsed with water. The development: The developer is made in the usual way: No. 1—Water, 1 litre; oxalate of potash, 300 grammes. No. 2—Water, 1 litre; sulphate of iron, 300 grammes. For use, three parts of No. 1 are mixed with one part No. 2, adding a small amount of bromide of potash. The film, with a pincette (not the hands), is placed, face up, into a very clean glass dish, and the developer poured on. In a short time the picture develops like a common negative. By retarding development, a much stronger negative than the original is obtained, thus giving greater range. After washing, the fixing is done in five per cent. solution of cyanide of potassium. If hyposulphite of soda is preferred, then the bichromate bath should be used weaker, only about two per cent. strong, to prevent blisters. Balagny prefers cyanide, because it fixes quicker and washes out more readily. After washing a soft brush is passed over the film, to remove all dust-like iron salt. Another fifteen minutes' washing in running water, and the film is ready for the next operation. Glycerin application and drying: To obviate curling, the films are placed, well separated, into a mixture of: water, 1 litre; glycerin, 40 Ccm. It is well to separate the films often, as each must have its full share of glycerin. They must remain two hours in this bath; no harm would follow if they were left twelve, or even twenty-four, hours in it. To dry

them, they are placed, face down, upon a clean glass plate, treated with the squeegee, their backs wiped with a linen cloth, arranged between sheets of thick blotting-paper, which is gently rubbed with the hand, finally, face up, upon a board.—*Archiv. (Photography.)*

Foreign Photographic Formulæ.*

Aluminium for Flashlight.—Dementjeff states that 15 gr. of a mixture of aluminium powder; the so-called aluminium bronze, 1 part; potassium permanganate, 3.45 parts, burns in one-eightieth of a second.

Blue Transparencies.—Bujakowitch recommends the ferro-prussiate process for making blue transparencies. Ferric hydrate is precipitated from a solution of ferric-chloride by the addition of ammonia or caustic soda, the precipitate washed and dried. To prepare the sensitizing solution, 154 gr. of ferric-hydrate are mixed with 230 gr. of oxalic acid and $3\frac{1}{2}$ oz. of hot water. When dissolved the solution is filtered, and it should be kept in the dark. Glass coated with plain gelatine solution, or else old dryplates, may be used; the latter should be thoroughly fixed and washed, and then immersed for three minutes in the sensitizing solution and dried. They require about thirty minutes' exposure in diffused light under a normal negative, and should then be developed with a 10 per cent. to 15 per cent solution of potassium ferricyanide till they show the necessary vigor, and should then be soaked in a 3 per cent. solution of hydrochloric acid for about five minutes, and then well washed and dried.

Glycin and Pyro Developer.—Hertzka warmly recommends a combination of these two developing agents, and suggests the following formulæ:

No. 1.

(a) Water.....	7 oz.
Sodium carbonate.....	308 gr.
Glycin.....	62 "
(b) Water.....	7 oz.
Sodium sulphite.....	618 gr.
Pyrogallol.....	100 "
Sulphuric acid.....	2 to 3 drops.

For use, mix equal parts of a, b, and water. This gives soft results, specially suitable for portrait work.

No. 2.

(a) Water.....	7 oz.
Potassium carbonate.....	124 gr.
Glycin.....	31 "
(b) Pyro solution as in No. 1.	

For use, mix as directed for No. 1. This gives negative of greater density and great clearness, which are especially suitable for platinum printing.

No. 3.

(a) Same as in No. 2, but with 61 gr. of potassium carbonate in addition.	
(b) Same as in No. 1.	

Mix as in No. 1. This is very suitable for instantaneous work.

Increase of alkali produces more details in the shadows and lessens the intensity

* From Eder's *Jahrbuch*.

of the high lights, thus giving soft negatives. This should be used, then, for instantaneous work or under-exposure. Increase of glycin and pyro produces denser high lights and more contrast, and this will be useful for over-exposure and flat subjects. Dilution of the developer with water also gives softness. Old developer acts as a good restrainer, producing clearness, and is useful also in case of over-exposure.—*Pharmaceutical Journal*.

Advertising Axioms.

By J. WALTER THOMPSON, of New York.

"The better the day, the better the deed." The better the "ad.," and the better the mediums used, the better the results.

If you have something that the people need, advertise "with courage and faith," and the people at home and abroad will respond to your profit.

Do not forget that an advertisement in "perpetual motion," if it is good, will wear its way into the people's memory with consequent results to you.

Here is a suggestion—"Make your advertisement an argument deriving its force from the situation, and present it clearly to all to whom it is addressed."

By advertisers I mean those who know that advertising well done is bound to bring results; by business men I mean a very large class of manufacturers who are "poor in the midst of great wealth," i.e., of possibilities of development.

Turpentine.

"Alas! for the future of the American turpentine industry," says *The Garden and Forest*. The long leaf pine belt of the South is being rapidly destroyed by the lumbermen and turpentine workers, both of whom conduct their business on what has been bluntly but properly termed the "robbing system." "Every evening," says the writer, "the sky is illumined by a dull red glare." The track of the turpentine workers is marked by a barren waste. The turf workers allow the fires to run through the tracks they have worked, and the resin on the scarified surface of the trees burns like paraffine. A spark is followed at once by a blaze which sweeps off thousands of acres of trees. The annual yield is 340,000 casksof spirits of turpentine and 1,490,000 barrels of resin, and to get this 2,500,000 acres of pine forest are being worked, and nearly 1,000,000 acres of forest primeval are being invaded annually. It is calculated that the long-leaf pine belt covers an area of 130,000 square miles, but the reckless cutting and tapping of trees has already caused a decline in the production, and the writer says significantly that the workers will find it more profitable in the long run to change their ways and work the forests "for fifty years instead of five."