and paper moistened after exposure did not become colored by the developer; hence the author concludes that KI perfectly destroys the photographic sensibility of AgI both during and after the exposure.

The Effect of Fire on Cast Iron.

From the London Builder, No. 1075.

Attention has been directed by Dr. Percy, to the fact that several of the cast iron girders at the German Bazaar, were much bent, and the columns distorted, by the operation of the fire which occurred there some weeks ago. The subject is one of great importance with reference to the use of cast iron for building purposes. The girders in question were 18 feet long and 13 inches deep in the middle, tapering off slightly towards each end, and flanged, as usual, at the bottom. Of those entire after having fallen to the ground two were bent laterally in a striking and a nearly equal degree. The flexure was gradual from end to end. The deviation from a straight line at the end was 22 inches. No cracks could be anywhere detected. Many of the cast iron columns, which are still upright, Dr. Percy says, have been singularly twisted at the upper part, as though the metal there had been softened by heat, and had yielded without cracking, to the effect of pressure from above. As far as he could judge, there was no very decided evidence of fracture in either girders or columns from the injection of water upon them; and yet, from the fused glass and other objects which lay scattered about, it was certain that they must have been exposed to a pretty high temperature.

We may endorse Dr. Percy's observation, that a museum of objects in illustration of accidents, such as the bursting of boilers, breakage of railway axles and tires, railway collision, &c., would be as interesting as it would assuredly be important in a practical point of view.

New Process for Silvering Glass. By M. A. MARTIN.

From the London Artizan, Oct., 1863.

Among the large number of processes for silvering, Drayton's process is the best adapted for telescope glasses; but, as this process requires great skill on the part of the operator, I have endeavored to find some method, which, by its simplicity and sureness, might become general. After carefully studying and experimenting on all the known processes (aldehyde, sugar of milk, glucosate of lime, &c.), I have arrived at one, which, from its simplicity and the firm adherence of the layer of silver deposited, seems to fulfil all the necessary conditions. I begin by preparing:—1. A solution of 10 grammes of nitrate of silver in 100 grammes of distilled water. 2. An aqueous solution of pure ammonia, marking 13 degrees on Carter's areometer. 3. A solution of 20 grammes of pure caustic soda in 500 grammes of distilled water. 4. A solution of 25 grammes of ordinary white sugar in 200 grammes of distilled water. Into this pour 1 centimetre cube of nitric acid at 36 degrees, boil for twenty minutes, to produce the

interversion of the sugar, and then make up the volume of 500 centimetres cube with distilled water, and 50 centimetres of alcohol at 36 degrees. This done, I prepare an argentiferous liquid by pouring into a flask 12 cubic centimetres of the solution of nitrate of silver (1), then 8 cubic centimetres of ammonia at 13 degrees (2), then 20 centimetres of the solution of soda (3); and lastly, make up a volume of 100 centimetres by 60 centimetres of distilled water. If the proportions have been properly observed the liquid will remain limpid, and a drop of solution of nitrate of silver will produce a permanent precipitate; then after being left quiet for twenty-four hours the solution is ready for use. Clean the surface to be silvered with a cotton plug impregnated with a few drops of nitric acid, then wash it with distilled water, drain and place it on supports on the surface of a bath, composed of the argentiferous liquid, to which has been added one-tenth or one-twelfth of the solution of sugar (4). Under the influence of diffused light the liquid becomes yellow, then brown, and after from two to five minutes the whole of the surface of the glass will be silvered; after ten or fifteen minutes it will have attained the required thickness; it must be washed first with ordinary water, then with distilled water, and stood upon its edge to dry in the air. The surface will then be covered with a light, whitish veil, easily removed by a little polishing rouge on chamois leather, leaving a brilliant surface perfectly adapted by its physical constitution for the purposes for which it is intended.

Railway Grease.

From the Chemical News, No. 207.

The process of manufacture is exceedingly simple. The fats are melted in a boiler, and brought up to 130° to 190° F. The water and soda crystals are heated in another vessel to 200° F., and both run into a wooden tub, with constant stirring, which is continued at intervals until the mixture is cold. Slow cooling insures a firm article, and large batches, which retain their heat for a considerable time, are therefore preferable. Care is taken for obvious reasons to avoid the introduction of sand or gritty matter. The proportions of materials vary in different establishments, and in the same establishments at different seasons of the year, the grease for July use being too firm for December, and *vice versa*. 25 per cent. is the lowest quantity of fat that can be safely used in the coldest weather, while 25 per cent. is amply sufficient for our warmest summer use. The following proportions have been used with excellent results:—

	Winter.			Summer.		
	cwt.	qr.	lb.	cwt.	qr.	lb.
Tallow . . .	3	3	0	4	2	0
Palm oil . . .	2	2	0	2	2	0
Sperm oil . . .	0	1	7	0	0	27
Soda crystals . . .	1	0	14	1	0	8
Water . . .	12	3	12	12	0	26

These proportions produced one ton of grease (allowing 2½ per cent.