

Composition Paint.

This refers to a composition paint which will not corrode when subjected to the action of water and further renders the material coated waterproof. The paint consists of:

Spirits of wine.....	1	gallon.
Shellac.....	4	pounds.
Resin.....	1	pound.
Steatite.....	½	pound.
Lampblack.....	2	pounds.

Instead of lampblack, any other desirable pigment may be employed. The ingredients are thoroughly mixed together, and for 30 minutes subjected to a heat of 212° Fah., and then allowed to stand for 48 hours. The mass is subsequently strained and ground in an ordinary paint mill.

The Pennsylvania Company's New Station at Philadelphia.

At this station, an engineering work of considerable interest is now being carried out by Mr. Percival Roberts, of the Pencoyd Iron Works. At present the station platforms are covered by two arched roofs of moderate spans, but a short time ago the company decided that the width of the station should be increased and placed under one roof, the width of which will be 307 feet clear, a dimension exceeded only by two other famous structures—the Machinery hall in Paris and the Manufactures building at Chicago. It was a matter of necessity that this alteration should be carried out without interfering with the constant traffic of the station, and accordingly the great span is being erected over, and clear of, the existing roofs, which will be removed after the completion of the new structure. In design the new roof will resemble very closely that of the Jersey City station. Large areas of glass in exposed situations, and at a great height above the ground, are a constant source of expense for maintenance, and what is much more serious, a standing danger to the people on the platform beneath. These dangers have been practically obviated by the use of glass moulded upon round steel wire netting. The netting is embedded in the glass, so that fracture becomes practically impossible, and in any case must be limited to very small areas, and no broken glass can fall to the ground. This new glazing material can be bent, and in this way curved skylights can readily be made. The method of making this wire-strengthened glass was illustrated in the SCIENTIFIC AMERICAN of Nov. 5, 1892.

JAPANESE AT THE WORLD'S COLUMBIAN EXPOSITION.

One of the most picturesque parts of the Exposition on opening day, says *L'Illustration*, was the Japanese section, before which the exhibitors had grouped themselves, offering a picture that was truly characteristic of this race, which is gradually becoming Europeanized. Some have adopted modern garments, while others, who are more timid, retain a part of their national costume, but wear shoes instead of slippers, and have English caps on their heads.

REFRACTION AND DISPERSION OF LIGHT.*

Fill an ordinary drinking glass, having a plane bottom, one-third full of water and incline it, as shown in the engraving, so that the water forms a prism. This permits the observation of the phenomena of refraction and dispersion of light.

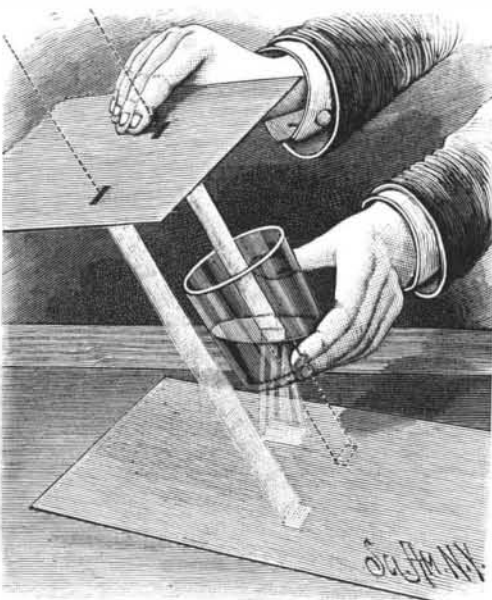
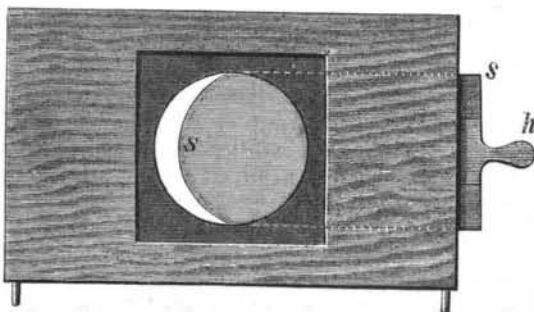


Fig. 1.—REFRACTION AND DISPERSION.

The experiment may be performed in the sunlight or by means of a lamp in a darkened room. In the first case, a card, having two slits made in the same line, is held over the glass and the glass is inclined so that the rays of the sun pass through it parallel to its axis. The card is held parallel with the top of the glass containing the water. Through one slit the light is allowed to fall on the



Fi. 2.—SLIDE ILLUSTRATING IRRADIATION.

water in the glass, and through the other upon a piece of white paper placed under the glass. The beam is seen diverted from its course, and upon the paper is seen the spectrum.

The pencil of rays emerging from the glass is thus seen diverted from the path of the incident beam and also dispersed.

Irradiation.—This phenomenon, which is frequently

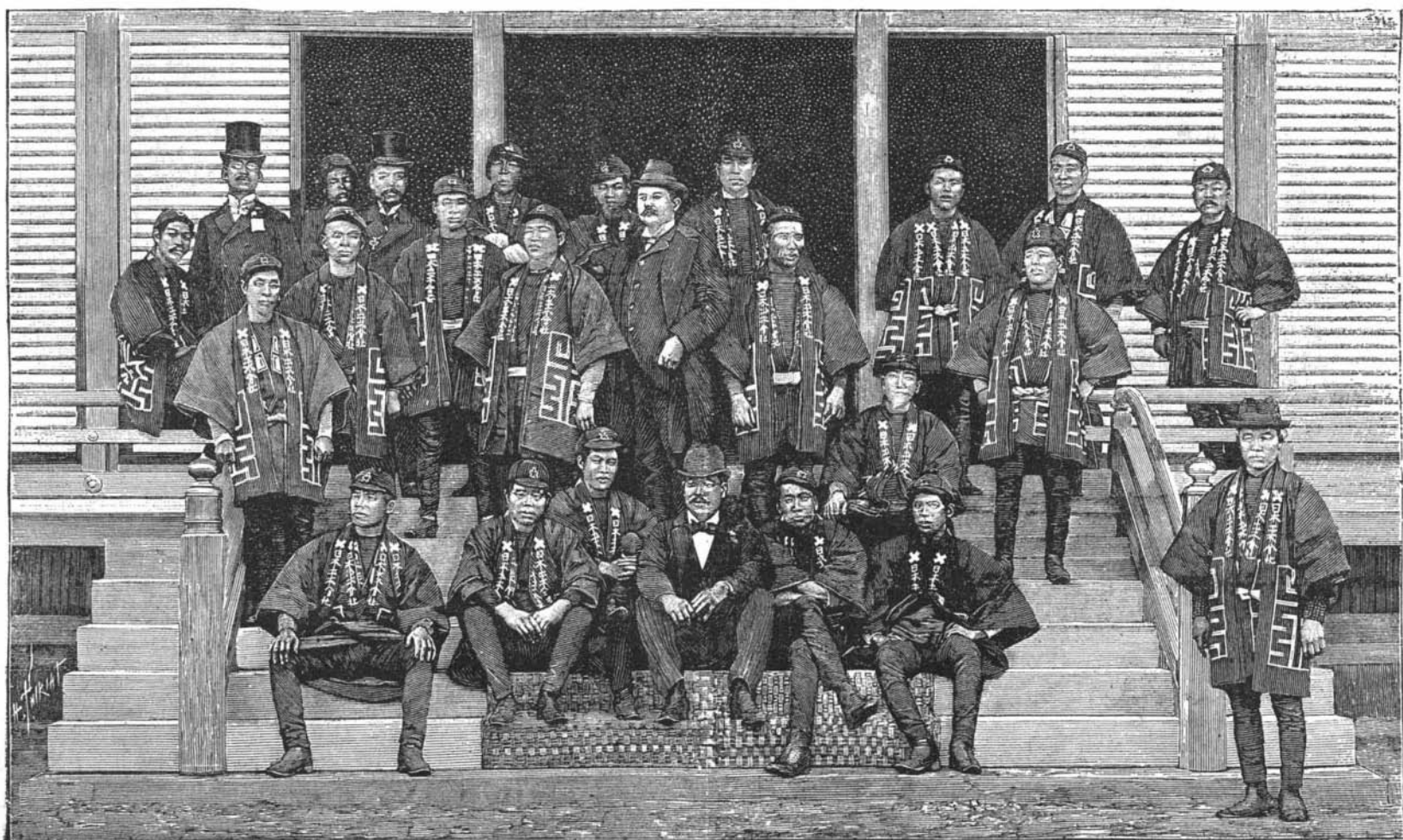
* From the German translation of "Experimental Science."

noticed in observing the new moon, may be demonstrated experimentally by the apparatus shown in Fig. 2. The frame, which is fitted to an optical lantern, carries an opaque plate having a circular opening, before which a slide, *s*, of ground glass or paper, is placed. If this slide is opened only a little way, the outer border of the half crescent appears to be formed on a larger circle than that of the dark part.

Engraving Glass by Electricity.—The glass plate to be engraved is covered over with a concentrated solution of saltpeter and connected with one pole of a battery. A fine platinum point is connected with the other pole. This point serves as a drawing pencil, and the lines traced by it will be found etched in the surface of the glass.

Photography as an Aid to Art.

At the meeting for the distribution of prizes to the students of the Art Training School, South Kensington, an address was delivered by Mr. W. F. Yeames, R.A. He pointed out that the standard of work required from artists was getting higher every day, the competition, owing to the increase of their number, being also very much greater. Students must always bear in mind that the instruction received in schools was always technical only, and that they were but on the threshold of art when they left the school, and must depend for success upon their individuality. When they entered into their work in the field of art they would come under many influences, and it was on one of these he wished to dwell, that of photography. Photography had done a great deal, especially for art. In one branch it had been an enormous help in the reproduction of the works of fine art throughout the world. Photography was a feature of the age of science and mechanical appliances, and, like all things scientific, dealt in facts. In no photograph did one see any expression of the emotions of the heart; but these were qualities which they, as artists, would have to deal with. In a broad way he would say the art of drawing had improved under the influence of photography, but he would make a slight exception as regards the rendering of human form and face by the great masters. He could not say that photography had excelled the productions of these great men, who had such a keen perception of everything in nature that they were able to produce results that photography had never surpassed. But with nature in general, vegetable life, clouds, etc., photography had brought to light many things not known before. With reference to when and how students should use photography, he said the artist could use it with impunity when his knowledge enabled him to do without its services: that is, a man should be master of photography, and not photography master of the man. Before using it he should be so well grounded in the technique of drawing as to be able to draw any object in nature; photography would then be of much use to him, as it would lighten his labor and extend the range of his subjects. Photography should be used only as an aid to art work.



JAPANESE AT THE WORLD'S COLUMBIAN EXPOSITION.