

PHOTOGRAPHIC NOTES.

To Prevent the Curling of Prints on Albumen Paper.—In the October number of the *St. Louis Photographer* we find the following practical hints on the above subject, suggested by Mr. John Vansant :

The great and forcible contraction which occurs in prints made on sensitized albumen paper, when they are dried after having been wet, can be prevented by the following very simple means : After having the prints fixed and all the hyposulphite sodium removed by sufficient washing, drain them well and press the water well out, then immediately immerse one by one in a solution of pure *glycerine* in *distilled water*, about 1 part of glycerine to 5 parts of water. Let them soak in this till thoroughly saturated ; then remove them separately, and absorb the superfluous fluid by gentle pressure between clean sheets of white blotting paper. They can then be laid out flat, where they will dry without much shrinking, and be found smooth, soft, and with little or no tendency to curl.

These prints can then be mounted *dry* with paste or gelatine, and burnished as usual. The cards will remain perfectly flat.

To Remove Yellow Discoloration from Bromide Prints.—Should it occur after oxalate of iron development, I have found the best agent to be *oxalic acid*, about 3 grains to an ounce of distilled water. After fixing and washing out all the hyposulphite of sodium, soak the prints for a few minutes, or until the whites are bleached, in the oxalic acid solution. Then wash again thoroughly to remove the acid. This acid seems to have very little effect on the dark parts of the picture, and it can be applied in solution as above stated, successfully, to bleach the prints even after they have been dried.

Retouching Negatives.—In the same journal, J. H. Farmer gives the following advice on retouching :

Many photographers are in the habit of grinding their negatives. It is a great mistake. It is not necessary to either varnish, grind, or prepare your negative in any way. Simply use a metallic lead, and work right on the gelatine surface. The very finest effects can be obtained in this way.

To Change a Blue Print to Black.—Dissolve a bean of caustic potash in 5 ounces of water, soak the blue print therein until it fades to pale yellow. Wash. Dissolve a heaped teaspoonful of tannic acid in half a pint of water. Put in the yellow prints. Leave in until darkened to the color desired. Then wash thoroughly.

Phosphorescent Photography.*

In observing Mont Blanc after sunset, in the beginning of September, 1883, M. Ch. Zengler was impressed with the fact that the greenish blue light could be perceived as late as 10 h. 30 m. P.M. This led him to think that the ice on the summit, mixed with the debris of carbonate of lime, emitted a light similar in color to that of the water of Lake Lemman, and that it would be possible to fix the image of the mountain, during the night time, by the phosphorescent light of the ice, which ice he found to be a highly actinic body.

On his return he performed an experiment consisting in projecting images by a photographic camera and lenses upon a plate of glass covered with Balmain's luminous paint, spread evenly over the surface, as if a photographic plate was to be covered with collodion.

After an exposure of a few seconds' duration, he took the plate from the camera into a dark room and placed it in contact with a photographic dry plate. After one hour's contact in darkness, he found that the image of the object appeared in all its detail, just as in the case of an ordinary exposure.

From his observations in Geneva, M. Zengler thought that carbonate of lime that had received the rays of a bright sun during the day might emit invisible, but very actinic, rays. Following out this order of ideas, he performed an experiment during the night of May 17, 1884, the sky being clouded. An exposure of the plate, about midnight, upon the terrace of the Astronomo-Physical Observatory of Prague, for a period of fifteen minutes, gave reasonably good images of towers and surrounding buildings, after a contact of the phosphorescent plate with the photographic plate, prolonged up to the morning of the following day. From this the author concluded that radiations were emitted, even by isolated bodies, that at midnight were quite actinic in the absence of all other light.

M. Zengler repeated, later, these experiments, using printed paper which he had exposed during the daytime to strong sunlight. After an hour's exposure, he placed it in contact with ordinary sensitized paper in the camera. In a few hours the impression of the paper was effected in such a way that development was not required, fixing alone being necessary, the letters appearing in plain black. M. Zengler has applied this method to copying printed notes.

These experiments led to the conclusion that light

* Paper presented at the seance of the Academy of Sciences, Paris, August 30, 1886, by M. Ch. V. Zengler.

could be, absorbed and slowly radiated afterward, and that images of bodies invisible in darkness could be fixed by simple contact or by photographic apparatus. The question then arose whether a number of the heavenly bodies, which are illuminated during greater or less periods, did not radiate back this light when they were immersed in darkness, in the form of actinic light, just as walls illuminated in the daytime gave up during night the light absorbed. If this surmise was correct, celestial chart makers could take advantage of it, for with a telescope of 8 inches aperture and 41 inches focus, a few seconds would suffice to print the phosphorescent plate, and to show stars even of the ninth degree of magnitude, when in darkness the phosphorescent plate thus acted on was brought into contact with a gelatino-bromide plate.

Quite recently the author has experimented with fluorescent bodies and with bodies sensitive to actinic light, such as uranates and nitrates of uranium ; he thus obtained latent images that could be developed after several months had elapsed, provided that during this period they were kept in darkness and in perfectly dry air.

In conclusion, the images of many bodies can be obtained in darkness when, like carbonate of lime paper, etc., they possess the property of slowly giving out light absorbed during an exposure. Thus objects can be reproduced which up to the present time remained quite invisible to the eye, by making long exposures with lenses or mirrors of very short focus upon plates covered with phosphorescent or fluorescent substances, and by printing in darkness and for a long enough time upon a more or less sensitive bromide plate, either collodion or emulsion coated.

The Fearless.

This vessel, which is at present being fitted out by the Barrow Shipbuilding Company, from whose yard she was launched in March last, is the first of a very formidable type of torpedo cruisers which are being built for the English navy. The Fearless is expected to be ready for active service about November next. The vessel is 220 feet between perpendiculars, 34 feet extreme breadth, and 19 feet 9 inches depth of hold. Her displacement is 1,430 tons on a mean draught of 13 feet 6 inches, when completely equipped with armament, stores, and coal on board. She is propelled by twin screws, each screw being driven by an independent pair of engines of the collective power of 1,600 horses, giving an aggregate indicated horse power of 3,200 horses for both pairs of engines. The speed indicated by the Admiralty when the vessel was designed was 16½ knots, but the builders are confident that a much higher rate of speed will be attained during the forthcoming trials.

The gun armament consists of four 5 inch B. L. R. guns, mounted on Vavasseur's central pivoted carriages, eight Nordenfelt machine guns, and two Gardner guns. The torpedo armament consists of eleven torpedo tubes, or air guns, one fitted on the bow under water, and the others ranged along the upper deck. The gunners, when working the guns, are protected by shields revolving with the carriages, and those working the torpedo tubes are protected by steel plating in way of each torpedo port. Four air-compressing engines are fitted in the vessel for supplying motive power to the torpedoes, and for ejecting them. There are also two electric search lights of 20,000 candle power, supplied by a dynamo. The Fearless being unarmored, her safety as a war cruiser is secured by the engines, boilers, steering arrangements, magazines, and other vital parts being placed below the load water line in watertight compartments with a protective steel deck fitted over them. She can be steered from three different places, and, when in action, all her men can be put out of sight. The vessel is built of steel, and particular care has been taken to combine strength with lightness.

The Care of Carriages.

The editor of the *Wagon Maker* in a recent interview with a prominent Chicago carriage builder gained the following information relative to the care of all painted vehicles.

The Jehu's Decalogue or Ten Commandments, as he terms his ten "Don'ts," runs as follows :

1. Don't forget that the preservation of the colors of painting and lining of a carriage depends in a great measure upon the way in which it is housed. The barn should be airy and dry, with a moderate admission of light, otherwise the colors will be affected. Do not let the vehicle be rolled near a brick wall, as the dampness of the wall will fade the colors and destroy the varnish. Direct sunlight should not strike upon it through the windows, which should therefore be curtained or otherwise screened. The coach house should not be connected with the stable or next the manure pit, since the ammonia fumes rising from the stalings will do more to crack and ruin varnish, and ruin colors of paint and lining, than all other causes put together.
2. Don't be in too great a hurry to use your vehicle when you have it delivered—either at first or after it has been revarnished. The change of temperature from

the factory to your coach house may—especially if you have been in a hurry to get possession of it—affect the varnish. Let it stand unused for some few days, washing it with cold water, drying off carefully, and letting it stand in the shade where cold air will circulate freely. This will insure the hardening and brilliancy of the varnish.

3. Don't use the same sponge and chamois leather for washing the panels and under parts and wheels of a carriage. When washing a carriage, keep it out of the sun. Take care not to wet the linings, if cleaning off with a hose. For washing the body panels use a large, soft sponge, well saturated, which squeeze over the panels, so that the dirt will flow off with the water as it runs down. Use a second sponge for the under parts and wheels, and carefully dry each part with its special chamois.

4. Don't allow mud to dry on a new or newly varnished carriage ; spots and stains will be the invariable result if you do.

5. Don't use a spoke brush for cleaning the wheels and under parts of vehicles, even when you are tolerably confident that all mud has been removed. If any grit is left on either wheel or brush, it will scratch off the varnish and spoil the gloss as badly as if sand-paper had been used to do the work.

6. Don't allow water to dry of itself on a varnished surface, as this will produce stains. Remove all moisture with the chamois leather only, after the soft sponge has been used.

7. Don't use hot water or soap on a varnished surface.

8. Don't let leather-top carriages lie long unused with the top down, but raise it occasionally, taking off the strain on the leather and web-stay by slightly "easing" the joints. Frequently unroll the aprons also. If the leather is enameled, it may be washed occasionally with weak, soapy water—not first scrubbed with wetted soap—and the lather then removed with the hose.

9. Don't omit to take precaution against moths in cushions and linings. In the case of a close carriage, set a saucer of spirits of turpentine and camphor on the floor, draw up all the glasses and close the doors. This will prevent moths from doing damage, and often cure when neglect has to be remedied.

10. Don't neglect to examine the axles frequently. See that they are well oiled, and that the washers are in good order. When they require oil, use sperm oil, such as is always in the sewing machine drawer. Sweet oil will gum up, and should never be used. When putting on the axle nuts, be careful to fit the thread properly, not crossing or straining it. Occasionally inspect the entire vehicle. If a bolt or a clip seems getting loose, tighten it up at once with the wrench. If the tires of the wheels slacken, so that the joints of the felloes can be seen, have them shrunk at once ; and whenever any little repair becomes necessary or even advisable, have it done at once, and by some one who knows how to do it.

Fast Steamers at Low Cost.

A new company has been formed to run steamers between Liverpool and the Isle of Man. The island is distant about 75 miles from Liverpool, and about equidistant from England, Ireland, and Scotland, and has of late years become one of the most important seaside resorts in the United Kingdom, the passenger traffic having increased to such an extent that there are frequently four or five boats dispatched with passengers from Liverpool to the island the same day. The company has arranged a conditional contract for two first-class screw steamers, handsomely fitted and furnished, having triple expansion engines of about 1,500 horse power, and to be fitted with bilge keels, which prevent rolling to a great extent. The dimensions will be : Length, 225 ft. ; breadth, 30 ft. ; depth, 13½ ft. ; which dimensions and power are largely in excess of the present screw steamers on this station, and the company further intend building a first-class winter or spare boat of smaller dimensions.

Messrs. Russell & Co., of Port Glasgow and Greenock, commenced the first steamer on the first of October, and she is to be ready for her station by next Easter. As an example of the low prices at which steamers may be had now, we may state that the contract price for the large steamers, which are to be built according to Lloyd's highest class as well as to the Board of Trade requirements, and to steam at 17 to 18 miles an hour, is only £18,500 each, subject to any alterations that may be considered necessary by the directors, and the price of the spare or winter steamer, the plans and specifications for which are now being prepared, will be about £10,000.

What Makes Vinegar Sharp.

George Adams, in 1747, said that some people have imagined that the sharpness of vinegar is occasioned by the eels striking their pointed tails against the tongue and palate ; but it is very certain that the sourness of vinegar has none of those eels, and that its pungency is entirely owing to the pointed figure of its salts, which float therein.