PHOTOGRAPHIC NOTES.

An Improved Film.—One of the troubles with thin rollable films has been to keep them flat in the developing dish and in the printing frame. Usually they are soaked in a solution of glycerine and water, after fixing, to help make them dry flat.

A company at Rochester, New York, has just introduced a new film which has the property of keeping flat through all the manipulations, and when dry, also, in the printing frame. It consists in coating the back of the celluloid support with a film of insoluble gelatine having the same expansive and contractive qualities as the sensitive gelatine film. Thus the two forces, so to speak, of expansion and contraction counteract each other equally.

A Double Film Dry Plate.—According to the *Br. Jour. of Photography*, a new dry plate has lately been introduced, coated first with a film of a slow emulsion and second, after the first is dry, with another film of a rapid emulsion. It is said to give very excellent results, as the first film in contact with the glass counteracts any effect of overexposure on the first film and also prevents what is known as halation around images of bright objects.

Formulæ for Preparing Gelatino-Chloride Paper.—A correspondent in *Photography* thus describes his method of making this paper, which is becoming very popular.

I can recommend the following formulæ for gelatino-chloride emulsion paper as giving similar tones to albumenized paper. Make three solutions as follows:

A.

Gelatine	35 grains.
Hot water	1 ounce.

B.

Sodium chloride	25 grains.
Calcium chloride	20 grains.
Water	1 ounce.

C.

Nitrate silver (tri-crystal)	135 grains.
Water (distilled)	2 ounces.
Citric acid	25 grains.

Place the solutions in a water bath heated to 100° F., and leave here until all the gelatine has melted. Now mix solutions A and B, and then add two drops of a 20 per cent solution of hydrochloric acid. Keep the two solutions at a heat of 90° for half an hour, and then, by aid of either yellow or red light, pour solution C into A and B combined, drop by drop, stirring well all the time. Now put two drachms of rectified alcohol into the vessel which contained the silver solution, and add to the emulsion. The pot containing it must now be placed in the water bath at a heat of 120° F. for one hour, and then taken out and left to set for two or three days. You can now filter out any dust or insoluble precipitates not wanted in the emulsion. First warm gently until it has perfectly liquefied, and then strain three or four times through a linen bag, and all will be ready for coating. Pour the emulsion into a dish, and take hold of a sheet of paper by the ends and lower gently into the dish, allowing the middle to touch the surface first, and gradually lower the edges until it floats on the emulsion. Leave it here for three minutes, and hang up by clips to dry.

World's Fair Notes.

On the inland waterways which traverse the world's fair grounds from one end to another, there will be plying three kinds of boats for public use. These will be the omnibus, express and cab boats or launches. The omnibus boats will make regular trips around the waterways, stopping at each building. The express boats will make round trips without stopping, while the cab boats, with carrying capacity of four persons, may be hailed at any point and engaged for the trip or by the hour, as is a hansom cab.

A dispatch from Singapore says that the Sultan of Johore, one of the most prosperous states in the East, situated in the western part of the Malay Peninsula, is causing to be prepared for the World's Columbian Exposition a model Malay village, in which the trades and industries peculiar to the Malays will be carried on by natives. It is highly probable, the dispatch adds, that the sultan himself will visit Chicago during the exposition.

One of the most interesting exhibits in the government building at the world's fair will be a display of arms, uniforms, tents, and flags in use in the United States army at various times since 1776. This display is being prepared in one of the Gray's Ferry arsenal buildings. A space of 6,000 square feet has been set aside for this exhibit. The uniforms will be draped upon lay figures and arranged in realistic attitudes. The one particular group in which especial pride is taken is to consist of seven figures on horseback, representing a general of the present army and staff. The central figure will be as nearly as possible an exact likeness of Major-General Schofield. All the articles were made entirely by Americans and of American materials. There is a collection of at least twenty-five flags, and these alone are valued at $8,000.

The United States Patent Office will exhibit at the world's fair as complete a collection as possible of the models of all the important American patented inventions, with a view of showing the great advance in the several arts, which is due in no small degree to the encouragement and protection afforded by the patent system. Many of the desired models are not now in the possession of the Patent Office, owing to loss by fire and the fact that in recent years models have not generally been required. The available appropriation is not sufficient to enable the office to make the missing models, and, therefore, the Commissioner of Patents has issued an invitation to inventors and manufacturers to loan such models to the office with the understanding that they will be returned, and that due credit will be given in labels and catalogues. This invitation is being met with hearty response.

Bleaching of Woolen Fabrics.

In decolorizing woolen fabrics two agents are commonly employed. These are sulphurous acid and hydrogen peroxide. The use of these two substances is by no means a modern innovation. Indeed, the first goes back as far as the Christian era, and the second almost as far, certainly to the time that the cloth was laid out in the air and bleached with natural agents.

In the natural method of bleaching it is commonly supposed that the element which accomplishes the decolorizing of the fabric resides in the sun's rays. But chemical research has shown that this is erroneous. A substance called ozone has been separated from the atmosphere, and it has been demonstrated that this is the element which has to do mainly with the bleaching process. This substance is always present to some extent in country air at all times, and it is a fact that cloth exposed to the bleaching action of country air is always more perfectly whitened than when it is exposed in the closer, more confined atmosphere of cities or towns. To facilitate matters, then, it has been the aim of chemists to obtain this element in quantities sufficiently large to enable manufacturers to do their bleaching in less time and at less expense. As yet the use of peroxide of hydrogen cannot be said to be as common as it might be, but it is steadily growing in favor. This is but natural, since it gives a purer white upon wool than sulphurous acid, and one which is more permanent and clear. The great obstacle to its more extended use as a bleaching agent is the fact that it has not yet been produced on such a scale as to bring its price within the range of economy.

In using hydrogen peroxide, it is necessary to apply a little ammonia, and this has the effect of neutralizing the acid which is always present. This acid is employed in the manufacture of the agent and is left with it in order to keep it from spoiling, which it is sure to do when left in its natural condition. The goods to be bleached are passed through the solution of peroxide, slightly wrung and gradually dried. This is sufficient in many cases, but where the condition of the wool requires it, it may be necessary to repeat the process two or three times before the desired whiteness is attained.

The second method employed in bleaching woolens is that in which sulphurous acid is the agent, and it is probably the most common of all. The operation is undergone in a compartment constructed for the purpose called a stove or oven. The material used is brick or stone, lined with wood, and in the lining all nail heads, hooks, etc., are carefully concealed. The reason for this is that, by the action of the gases disengaged during the process upon the iron, sulphate of iron is formed, which drops upon the cloth and makes a spot that cannot be removed.

The woolens to be bleached by this process must first be thoroughly scoured, after which they are soaped with a neutral white soap. The whizzing must be as complete and perfect as possible, so that no loose water shall remain in the folds or creases of the cloth to prevent the uniform action of the gases upon all parts of the cloth alike. When thus prepared the cloth is hung in the bleach house or oven and there an amount of roll sulphur equal to about one-tenth of the weight of the goods is placed in an iron vessel and set on fire by means of a red hot iron. The doors are closed, and over this the cloth is allowed to hang for several hours. The goods quickly absorb the gases, and the coloring matter is gradually neutralized. After the time necessary, which will vary, of course, with the nature of the goods, has elapsed, the cloth is removed, washed, and dried. There is usually an odor present in goods thus treated, which arises from the fact that all traces of the acid have not been thoroughly removed. It is difficult to do away with this altogether, yet, where bleached yarns are to be woven with colored, unless they are removed there is sure to be an evil effect upon all colors which come in contact with the white. The acid may be removed by first washing as clean as possible in pure water, and then running the cloth through a dilute solution of hydrogen peroxide. The sulphurous acid is thus connected with sulphuric acid and easily passes off.

The third method adopted in woolen bleaching is known as liquid bleaching, but as a process is confined more especially to loose wools than to the woolen fabric. It is valuable as a process for bleaching loose wools, because it is less difficult to manipulate loose wools in liquid than in the other way, but it is not so powerful a bleaching agent as the gas, nor is the process altogether satisfactory in other ways.

The actual bleaching process is due in every case to the destruction of the yellow coloring matter naturally inherent in the wool. This destruction is brought about by means of the chemical action of the agent employed. But it has to be admitted that in no case is the reduction of this matter complete or permanent; since frequent washing in an alkaline solution has the effect of counteracting the influence of the bleaching agent, and restoring again the original yellow of the wool. This effect is noticeable in flannel underwear or blankets, which, though pure and white when they are taken from the store, soon begin to color up as they are exposed to the alkaline action of the soap used in washing.—*Textile Record.*

Machines and Men.

A writer in one of our exchanges, says the *Manufacturers' Gazette*, bewails the decay of mechanical skill in the following words:

"The decrease of manual skill and of artistic sense among mechanical workmen results not merely from want of such all-around practice as they got half a century ago, but from a want of that sort of loving interest in their work the old-timers used to feel, when they could put something of their individuality into everything that they made. Nowadays the workman has simply to work out a design—or rather to run a machine to work out some part of a design—prepared by some artist whom he does not know and never has seen. The general result may be beautiful when the different parts are assembled, but the workman feels that he has no personal share in the production of its beauty. He has become a regulator of a machine; he simply sharpens tools, adjusts them, keeps his machine oiled, and puts into it the material to be worked upon. All the precision, the nicety of operation are due to the inanimate rather than the living tool. What interest can such work beget? What lofty ambition can it stimulate? What workman when the bell rings the time to quit work feels reluctant to leave his task, or lingers over it to bring out some beautiful effect or interesting combination that he feels he must see before he can depart contentedly? If machines were invented to play billiards, and only by their use could this king of games be played, how long would the game be a favorite? If violins could be performed upon only by automatic mechanism, or pictures painted only by machine-actuated self-charging brushes, who would be charmed any longer by art? Neither the artist nor the dilettante; the artist and the dilettante would cease to exist. So, while we have gained much from the enormous increase in labor-saving machinery that has characterized the latter half of the present century, we have lost what probably will not soon be restored, the love of work and pride in work for its own sake, the love and pride that were the parents of mechanical skill, skill which, now they are dead, is itself decaying. The loss appears inevitable to those who scan the social horizon philosophically; it is, however, no less to be regretted because unavoidable.

"This tendency of labor-saving machines was many years ago pointed out by Ruskin, who, in the light of the fulfillment of his prediction, proved only too true a prophet. It is this effect upon the masses, more than unequal distribution of wealth, that is separating society in America into distinct classes."

Mica and Its Uses.

There is a greater range of use for ground mica than for the mineral in sheets, and, though the value of that part of the product made use of in this form is small, the many peculiar properties which ground mica possesses render it quite probable that its use will be widely extended. The difficulties to be overcome in grinding mica are considerable, and there are only two or three firms, says one of our London exchanges, engaged in the business at present. Eight standard grades of ground mica are made. The coarsest of these are used to give frosted and spangled effects to the fancy grades of wall paper. The medium grades are employed in the manufacture of a lubricant for the journals of railway carriages, for heavy bearings generally, and for the axles of road vehicles. The finest grades are used in producing a uniform metallic white surface on wall paper. Scrap mica for grinding must be white and as free from specks or colored matter as possible, since any impurities in the scrap will affect the color and luster of the product. There is considerable consumption of mica on the part of the manufacturers of electrical machinery and likewise for stove purposes. The higher grade micas are used for the latter purpose. The lower grade micas are used by the electrical manufacturers.

A New Use for Caffeine.

Caffeine, the active principle of coffee, has recently been recommended as an excellent local anæsthetic, and is said may, for many purposes at least, advantageously replace cocaine, the use of which is not altogether liked by many medical men,