

PHOTOGRAPHIC NOTES.

Sensitizing and Toning Plain Paper.—A veteran photographer thus describes his method, which has proved very effective:

Silver Clemon's plain salted matt surface paper with a fifty-grain solution of ammonia nitrate of silver; tone in a gold solution containing one grain of gold and sixty grains of borax in every four ounces of water; fix in a hyposulphite of soda solution containing one ounce of hypo. to every six ounces of water.

In preparing the sensitizing solution, first dissolve the nitrate of silver in the required amount of water and then pour one-tenth of it into a separate vessel, and to the other nine-tenths slowly add aqua ammonia, constantly stirring the solution until the ammonia has redissolved the oxide of silver thus formed.

When the solution is thus cleared, that there may be no excess of ammonia, add the tenth portion previously set aside. It is now filtered, and is then ready for use. This may be regarded as the stock solution. The portion required for immediate use may be placed in an ordinary drinking glass, and in applying it to the paper take a strip of gutta percha, four inches long, one and a half wide, and one-sixteenth thick. Cover about one-third of this with four thicknesses of bleached Canton flannel, and when this is thoroughly saturated in the solution, it may be used successfully in sensitizing the paper. This swab, if frequently used, may be left in the solution; but if only occasionally, it is better to wash out both it and the glass. The portion of solution remaining after use should be filtered into a bottle kept expressly for this purpose, and may be added to the stock solution required for any future occasion.

In preparing the toning solution, first dissolve fifteen grains of chloride of gold in fifteen ounces of water and then the borax in the amount of water required for immediate use; and in every three ounces of this add one ounce of the gold solution. After thoroughly stirring it, allow it to stand for a half hour or more before using it.

This bath, by being kept from the light, may be used repeatedly by simply adding half the quantity of gold solution required when first made up.

Prints thus toned will fix in the solution prescribed in from five to ten minutes, if not greatly overprinted; and when washed and mounted will present all the strength and vigor of the negatives used.

The formula, in brief, is:

Ammonia nitrate of silver.....	50 grains.
Water.....	1 ounce.
Chloride of gold.....	1 grain.
Pulverized borax.....	60 grains.
Water.....	4 ounces.
Hypsulphite of soda.....	1 ounce.
Water.....	6 ounces.

If Clemon's paper cannot be readily obtained, any of the brands commonly used for albumenizing may be utilized by first floating or immersing in a tepid bath containing three grains of gelatine and five grains of chloride of ammonia in each ounce of water. This paper, however, produces the best results only when freshly salted and should, therefore, be prepared only in quantities likely to be used in a month or two.

J. B. G.

Measly and Mealy Prints.—A correspondent asks what is the difference between a "measly" and "mealy" print, and what are the causes producing the same.

The appearance of a mealy print is readily recognized by its fogginess, dullness, and general lack of vigor.

A mealy print has the appearance or is similar to that of the same disease in the human subject. Hence its name. It is most noticeable by looking through the print. These spots appear to exist chiefly in the texture of the paper, and so ingrained are they that they may be regarded as almost incurable. Perhaps the best means of avoiding them is by floating the back of the paper immediately after sensitizing and blotting off the surplus with acetic acid one ounce, water sixty ounces.

The terms mealy and measly are not synonyms as used in photography, and the remedies to be applied in curing or preventing measiness are not always *apropos* in cases of measly prints. A mealy print may be caused by the manner in which the paper is albumenized or by the condition of the albumen, and though by skillful handling on the part of the photographer, it is much safer to exchange it for a better quality. In determining whether the fault is in the paper or is due to some other cause, it is only necessary to float it on a test bath containing forty grains of nitrate of silver and twenty grains of fused nitrate of ammonia dissolved in each ounce of water. If in silvering the paper on this bath there is any perceptible change after drying and fuming it, the fault is in the paper, and it should be thrown aside. Measiness, however, may occur with good paper when the silvering solution is very alkaline, or where there is too little silver to coagulate the albumen. Under such circumstances the solution penetrates through the back of the paper, and is very likely to discolor in a very few hours. A very strong and rapid toning bath will sometimes produce a mealy effect and destroy the brilliancy and force of the finished

print. But in any case, whether the measiness comes from the paper, from an alkaline or very weak bath, or from rapid toning, it may soon be learned and recognized by an observing and practiced eye, and so disposed of with but little loss of time and trouble.

J. B. G.

Plating with Aluminum.

BY L. Q. BRIN, PARIS.

The process which constitutes this invention is intended for depositing a coat of aluminum upon a metallic surface by the direct contact of a volatilized salt of aluminum with the surface. The sheets of iron or other metal are first of all cleansed from all impurities by an acid bath, and they are afterward plunged into a solution of borate of soda, hydrated alumina, and some easily fusible flux, so that the surfaces shall be preserved in a state of perfect cleanliness. The articles which have been treated in this manner are placed within a closed muffle, and the walls of the muffle are heated to a very high temperature by a surrounding furnace. There are openings in the sides of the muffle to provide for the entrance of the vapors, and for the escape of the gases resulting from their decomposition. Some salt of aluminum, such as the chloride, is heated in a vessel of fire clay to the temperature of volatilization, and it is then conducted through the muffle in direct contact with the surfaces of the plates. The aluminum is at once separated, and it is deposited upon the metallic surface. A current of inert gas, such as nitrogen, is forced through the retort and muffle along with the stream of aluminiferous vapor, so that no oxidation shall be possible. The outlet tube from the muffle conducts the residual gases into a receiver, upon whose condensing surfaces the sublimated vapors are deposited for further utilization as by-products. In this operation of plating it has been found by the inventor that the metallic sheets are not only covered with a coating of aluminum, but that they become impregnated with it to such an extent that it may be considered that they are composed of an alloy of the two metals.

The American Pomological Society.

The late meeting of the American Pomological Society was held in Ocala in accordance with the invitation of the Florida Horticultural Society, and the Northern visitors were impressed by the energy and intelligence shown by the members of this organization. It was natural that a large percentage of the papers should have been contributed by them and that they should have conducted most of the discussions. But the uniform excellence of the addresses was noteworthy. Nearly two hundred members of the local society were present, and their activity suggested the thought that the large percentage of the population engaged in fruit culture helped to insure a more general familiarity with the methods which command success than can be found in regions where fruit culture is subordinate to other branches of horticulture and agriculture.

President Berckmans, in his opening address, said that the Pomological Society was founded fifty years ago, not only to unite the fruit growers of the country in a brotherhood and furnish a means of social intercourse among them, but to be of practical utility in collecting and classifying the knowledge of different fruits gained in widely separated localities.

The committee on subtropical fruits, which was created at the Boston meeting of the society, proved its value by presenting a report which gave a better account of the history and importance of this strictly Southern industry than can be found elsewhere in the same compass.

In Louisiana the parish of Lower Plaquemines has the advantage of furnishing the earliest oranges. The entire crop is sold on the trees, and the oranges are often paid for while the trees are yet in bloom. The prospective crop of a hundred acre orange grove was sold last winter for \$30,000 before a blossom or bud had appeared on the trees. In southern Alabama the hopes of orange growers were frozen out with the death of the trees in the cold January of 1886, but the fig is here grown to perfection, and yields enormously. No other strictly subtropical fruits are grown here, but, as in the northern region of Florida, fruits of Oriental origin, like the Kelsey and Bhotan blood plums, the peen-to and honey peaches, the Le Conte and Keiffer pears, are receiving much attention. There is a reviving interest, too, in some old and almost extinct varieties of the peach, while the cultivation of the Scuppernong grape and of the pecan is rapidly growing in commercial importance.

In the Florida peninsula proper, and down to the twenty-eighth degree of latitude, the cultivation of the citrus fruits is the absorbing industry. The trees here grow like weeds, attaining the largest size and most perfect development. Every known variety of orange seems at home here, and many of the introduced kinds attain a sprightliness of flavor, combined with a juiciness and sweetness, which they never acquire in their original habitat. It is but reasonable to expect that in countries where these fruits have been cultivated for

centuries, varieties of the finest texture and flavor may be looked for, and enterprising Floridians are collecting and experimenting with the best oranges wherever they can be found. On the other hand, many persons hold that the best fruits can be had by selecting choice seedlings at home, which unite good quality with great productiveness. Many of the best known groves in the Indian River region are from Florida seedlings, and even the famous Navel trees, on account of their unfruitfulness, have in some cases been budded with so called native varieties.

The lemon is more tender than the orange, but the freezing weather three years ago did not cause irreparable loss in the southern counties, and largely increased areas are planted with this fruit every year.

Many persons consider it the most promising for cultivation of all the orange family. Florida lemons were quite unsalable a few years ago, but now, since more has been learned of varieties and of proper methods of curing and harvesting, they lead the market in value.

The pomelo, or grape fruit, has conquered a position for itself in the North, and must soon be as popular in the market as it always has been for home use. Its beauty and size and flavor must make it salable, and its productiveness will make it profitable. It varies greatly, and new and improved varieties will certainly be produced.

The best varieties of the lime have been so lately introduced that little is yet known of their commercial value. Besides these, many minor fruits of this family have been introduced and are sparingly used in a domestic way, like the citron, the shaddock, and the kumquat, a diminutive Japan orange of great value for preserving.

The fig has already been mentioned, but it thrives best north of the orange belt. The loquat, or Japan medlar, is seen growing over all the State, and has proved profitable where planted for market. It is susceptible of great improvement, and the better varieties can be grafted on seedlings or on quince roots, as is done in California. The kaki, or Japan persimmon, is a comparatively recent introduction. Some of its varieties are so rich in color that they may be fairly termed gorgeous, and in flavor it bears as high a rank as it does in appearance. No doubt its introduction marks an era in the history of fruit-growing in the State, for its culture is no longer an experiment. Still, comparatively little is known as yet of its distinct varieties or their special uses. One of the most interesting fields of experiment now offered to horticulture is the hybridizing of the kaki and the American persimmon. In the orange belt the hardier varieties of the guava, the olive, the date, the carob, the downy myrtle, the Chinese litchi, and other fruits have been successfully grown, while south of this region the custard apple, the tamarind, the tropical almond (*Terminalia Catappa*), the pineapple, the hog plum (*Spondia*), the Barbadoes gooseberry (*Peireskea aculeata*), the star apple (*Chrysophyllum Cainito*), the mango, together with the banana and cocconut, are all in cultivation, and described with some detail in the report.—*Garden and Forest*.

Bent Wood Furniture.

The material to be bent, as practiced in Austria, is usually the red beech, a product of the Hungarian forests. In the United States the common beech and birch are used and stained with the aniline reds modified by logwood and Brazil-wood. The timber is sawed into strips of the proper size and finished in a gauge lathe or by hand to the required proportions.

They are then placed in a tight case of wood or iron, and subjected to a steaming process for a few minutes, and in work requiring specially sharp bends the last steam is superheated slightly or the goods put under high pressure steam in an iron case with sealed door, capable of 50 lb. pressure. This makes the wood very pliable.

Moulds of wood or iron are used of the exact shapes, into which the hot strips are bound at the moment of removal from the steam case. In from two to eight days the strips are set and dry, ready for assembling, finishing, and varnishing.

Teak Wood.

So indestructible by wear or decay is the African teak wood that vessels built of it have lasted fully one hundred years, to be then broken up only on account of their antique mould or defective sailing qualities.

This wood is one of the most remarkable employed in the human industries, for its great weight, hardness, and durability, its weight varying from 42 to 52 pounds per cubic foot. It works easily, but from the large quantity of silic contained, the tools for working require to be hard, and even then are subject to severe wear. It also contains an oil which prevents the iron spikes and nails driven into it from rusting.

The East Indian teak wood is somewhat lighter and easier worked, and also from its silicious qualities a perfect germicide to marine life, so destructive to other woods. It requires from sixty to eighty years for growth sufficient for shipbuilding purposes. It is largely in use in English shipbuilding.