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The "Lights" and Formula of Frederick and Sarony.

A month or two since I made promise to you to write descriptions for *the* Journal of several of our most noted photographic studios, having for my object the instruction of those of our craft who, living at a distance from New York and the larger cities, imagine that the work which is produced in the better galleries is attributable to some peculiar sort of light, or some secret of the dark or printing rooms. Knowing that such was not the case, and wishing others to know the same, I have visited the gentlemen named above, and on stating my object, they both, as they often have before, placed every portion of their rooms open to my inspection, both stating that there was not one secret connected with their practice of the art.

For many years an amateur, and having travelled and photographed over a very large portion of our country, I have during such trips made the acquaintance of very many of our best photographers, and, as yet, have never met one, who made good work, who had any secrets, or who hesitated one instant about comparing his method of working with mine; but have in several instances been repulsed by bunglers, of whom I have asked questions solely with the view of correcting errors in their work, which I saw plainly the cause of.

I have repeatedly invited communications for your Journal, but the uniform answer has been "That they had nothing new to tell; they worked the same as everybody else." Which was true. Nevertheless, I am about repeating an old story, and giving old formula, for reasons stated.

Before entering into a description of the special subjects of this article, allow me to state a few general facts, often stated before, but not often enough; for, as yet, many do not understand them. They are, indeed, general principles, which cannot be much changed without trouble following.

First. As to the skylight. No matter which way it faces—north, south, east, or west (good work can be made under either)—let the light be directed upon the sitter, not towards the camera, as is too often the case. Shield the camera from the sunlight, or strong diffused light, either by placing upon the roof some contrivance which will effect the purpose, or cover the tube by a hood. The more diffused light there is about the room, the duller, flatter, will be your picture. The stronger your light, the less iodides and bromides you should use in your collodion, and the weaker your developer.

To obtain the much-desired middle tint, or detail in the shadows, give plenty of time, and use a quite weak, slow-working developer, avoiding the extreme of intensity.

My first visit was to Mr. Sarony, now occupying new and splendid rooms at 680 Broadway. His reception room—about twenty by sixty feet—is a model of artistic elegance, the walls and tables being covered with specimens of his finest productions, which, to those who know them, is all I need say; while, to those who know them not, I propose to them to visit and inspect. They will be politely welcomed by Mr. Sarony, or his partner, Mr. Campbell.

Upon the floor above, within a room of same size as the one just mentioned, are the skylights, operating rooms—not closets, but good-sized, well-ventilated "dens." The building stands nearly east and west, and the lights are both facing the north—one at each end of the room—and so nearly alike in size, that a description of one will answer for both. By having the two

lights, he is not only able to do double the work he would with one, but is able to obtain almost any effect of light and shade that will best produce the desired end, to choose the best side to light up each subject, and operate accordingly, which could not be done with one light.

Along the eaves of the building each light extends thirteen feet, which I shall call the length; thence back, and upward (at an angle of thirty degrees), thirteen feet; and from the upper or back, slopes down, tightly boxed in, at an angle of about forty-five degrees, to the roof, giving a square top-light. The side-light joins the top-light, and is of same length (thirteen feet), and three feet down, or wide, ending in a point five feet above the floor. The ordinary window-glass is used, neither ground nor coloured. As the same style of shades are used by both parties, I will describe them hereafter.

The collodion in use is iodized as follows :—

Iodide of Ammonium	4 grs.
Iodide of Cadmium	1 "
Bromide of Cadmium	2 "

Develop with weak ordinary iron developer, and, if necessary, strengthen with pyrogallic acid and silver, of which every one knows.

The printing is, of course, done upon his own paper, which is floated about one minute upon a plain sixty-grain nitrate of silver solution, which is kept clear by shaking up with kaolin and filtering.

Any good toning bath will answer. I, however, give the one he always uses.

Sarony's New Toning Bath.

Chloride of Gold	15 grs.
Water	2 oz.
Whiting, a teaspoonful.	

Shake well, then pour on boiling water until the yellow disappears. Filter, and add three drops of a saturated solution of chloride of lime.

This bath is easy to work, certain in its results, and can be used several times; in fact, the tone of the prints is superior after using the solution some days. When the day's prints are toned, pour the solution through a filter into a bottle.

Before using again, add five grains of chloride of gold, and three drops of a saturated solution of chloride of lime.

To Fix.

Hyposulphite of Soda	4 oz.
Water	30 "

Immerse for five minutes, and wash in the usual manner.

Is there any mystery here?

To Mr. Richardson, his skilful operator, many thanks are due, which I hereby tender.

Mr. Fredericks works two lights, both essentially different. Either, in unskilful hands, would prove useless, but directed by Mr. Hugh O'Neil (partner in the business), who specially superintends the chemical department, and Mr. John De Bains, whose skill under the light cannot be excelled, work is produced, unsurpassed, in all respects.

The upper light (on fourth floor) is a skylight only. It faces north-west; is of ground glass, fourteen feet square, at an angle of thirty-five degrees, and slopes away and down to the roof, solidly boarded up at an angle of forty-five degrees. At the lowest point, or base of light, it is nine feet above the floor.

The lower light (on third floor) is a side and top-light combined.

The top-light extends, in length, along the eaves of the (rear) building, thirteen feet, thence up, and back (at an angle of twenty degrees), fifteen feet. The side-light joins the other, and is of same length (thirteen feet), extending towards the floor nine feet, and to within eighteen inches of the floor. All the lights are glazed with the whitest and best ground glass. The light on the third floor (one last described) has sliding inside sashes of blue ground glass, which are drawn or pushed over alongside of the other or outer light. This is found neces-

sary in this one which faces south-west, from the fact that it is nearly always directly in the sun's rays. It is fitted with the ordinary style of curtains or shades, hung in narrow strips, by which any part can be drawn up or down, giving the light any direction towards the sitter that may be desired.

The upper, or fourth floor light of Mr. Fredericks, also the top or skylight portion of Mr. Sarony's lights, are provided with a very excellent style of screen, by which the light cannot only be reduced in quantity, but its direction can be changed as well.

For example, we take one of the lights thirteen feet long—if dividing this by six, it will be found that there are six sections, each twenty-six inches. Now, if the light is also thirteen feet wide (up and down way), the sections are twenty-six inches wide, by thirteen feet long. Now, make six frames of this size, and cover with blue tissue paper, which put up by means of hinges, or otherwise attached to the under-side of the top-light, and you have just the thing. It is self-evident that by turning these swinging screens up or down, by aid of cords and pulleys, that the effect spoken of can be produced.

The formulæ used by Mr. O'Neil are as follows :—

Collodion, when the light is very strong, like that upon the third floor, he uses—

Iodide of Ammonium	4½ grs.
Bromide of Potassium.....	2 "

For weaker light—

Iodide of Ammonium	5 grs.
Bromide of Potassium.....	2½ "

Developer : plain iron ; strongest under weak light ; strengthen with pyro and silver.

The printing is done upon the papers prepared by Mr. Anthony, and toned in a simple bath of chloride of gold, made alkaline with sal soda—common washing soda—and fixed in hypo.

Is there any mystery here? None! The great art consists in knowing how to place your sitter properly under the light : when to weaken, when to strengthen your collodion and developer, and when to stop its action. These come of experience,

intelligence, and common sense. They are not told in books or in journals : are only to be had by study and effort on the part of each photographer.

Other galleries will be described as my time and your space will permit.

Yours as ever,

C. W. H.

Phil. Photo.

Failures in Photographic Operations.

BY M. CAREY LEA.

The beginner in photography will be very apt to find, that, after proceeding reasonably well for a time, his success suddenly terminates, for some reason quite undiscoverable to him. He appears to be proceeding exactly as before, yet he cannot get the same results. A very simple and useful course will be to change each of his materials in succession, collodion, bath, and developer, and so endeavour to detect the proximate source of the trouble. This plan does not always, however, succeed, for the new material substituted may have precisely the same fault as the old ; it may not be in any respect bad or impure, but may be simply unsuitable to the other materials with which it is employed.

Not only the beginner, but even the experienced photographer, will occasionally find that things go wrong ; no one can claim entire immunity from photographic troubles. For these reasons the writer has endeavoured to make this chapter a very complete one, believing that it will be very frequently referred to, and with advantage. He has collected the information here given partly from personal experience, but also very largely from other sources, in various languages. For convenience of reference, it has been carefully classified under different heads :—

Fogging.

Fogging is a trouble that affects different operators very variously ; some are very frequently, others almost never affected

by it. The learner may expect to be frequently troubled, the experienced operator will have learned how to avoid it, except, perhaps, when he works under unusual conditions, or with chemicals different from those which he habitually employs.

Before proceeding to the particular sources of fogging, some observations of a general nature may advantageously be made.

General Remarks.—When a case of fogging presents itself, a careful study of the appearance of the plate will often afford a clue to the source of the trouble.

A fogged plate may present a uniform sheet of blank fog all over, without a trace of a picture. Or an image may come out with more or less strength, but, after showing itself, may presently become covered with a dense deposit of silver. Or, finally, the fogging may be very slight, leaving all details of the image perfectly visible, but ruining it by veiling the deep shadows sufficiently to prevent them printing to a full rick black.

The above various cases are alike in this, that the action of the fogging is *uniform* all over the plate. We, therefore, presume that the trouble lies either in the chemicals, the light, or the atmosphere of the dark-room, and, if we cannot get rid of the evil by the addition of a little iodine to the collodion, we must commence a series of systematic trials (see beyond), to detect the source of the trouble. We do not, however, in the above case, suspect the camera. For, if the camera leaks light, the effect of that light is invariably partial and irregular. The unequal contraction and expansion of the wood round the flange into which the lenses are screwed will often produce a crack; this will give a mass of fog somewhat denser in the middle, and shading off towards the ends of the plate. A hole in the bellows body will produce an irregular mass of fog on some part of the plate on which the light falls. If the dark slide does not fit tight, the fogging will mostly be at one end of the plate. A crack in the shutter will produce a bar of fog, lengthwise of the plate, and shading off on both its sides. Cracks in the woodwork will send in fan-like masses of light, and so on. These appearances will aid at once in the detection of the cause of the troubles. (See also, beyond, "White Light.")

Another very valuable distinction is drawn as follows :—

A *superficial fogging*, one that rests on the film and not *in* it, and can be rubbed off with the finger, is always attributable to the chemicals, never to exposure to white light, which last always produces an action in the interior of the film.

Therefore, if the fogging be internal and not superficial, it is most probably owing to intrusion of light. This cannot be affirmed with entire positiveness, but is the most likely cause, for faults in the bath, collodion, &c., most generally give rise to superficial fogging. That is, fog from chemicals is *generally* superficial ;

1. *Chemicals in fault.*—Generally speaking, when fog shows itself, and when the presence of white light is not suspected, the first thing done is to treat the bath.

But, in all such cases, the first step should be invariably to try another collodion, or to add a little tincture of iodine to that in use. Iodine tends to make the bath slightly acid. Therefore, the addition of acid to the bath, or iodine to the collodion, is, in such a case, a step in a somewhat similar direction. And it would at first seem more correct to add the acid to the bath, as that brings the bath at once to the requisite point of acidity, and stops there, whereas by adding iodine to the collodion every plate tends to render the bath more acid.

But, in practice, it is found that the results of the two treatments are very different. Sometimes a very little iodine will effect a cure when acid seems to have no effect. For example, the writer has seen a bath made of fused nitrate of silver absolutely refuse to give a clean picture, even when acidified beyond what is proper, and yet work excellently by adding a very little iodine to the collodion—a collodion which was not new, but had worked perfectly a month before, in cooler weather, with a nearly neutral bath.

When a neutral nitrate has been used, acidulation should not be carried beyond one drop of nitric acid or twenty-five drops of No. 8 acetic acid to every fifteen ounces of bath, and this much is only allowable when the nitrate of silver is free from acid. When the acidifying has reached this point, if the pic-

ture is not clean, the remedy is most certainly needed in the collodion. And it must never be forgotten that these treatments with acid or with iodine are but necessary evils, and that the more nearly neutral the bath and collodion, the more rapid will be the work.

The bath, however, may have been alkaline, and may, therefore, need neutralizing and acidifying. This will be ascertained by introducing a piece of red litmus paper. Alkalinity may arise from having introduced an alkali intentionally, especially if ammonia has been added, previous to sunning. Bicarbonate of sodium renders a bath rather neutral than alkaline, and is the only substance that should ever be employed for removing an excess of acidity. Or alkali may have been carelessly introduced, when glasses cleaned with caustic soda or other alkali have been insufficiently washed before collodionizing.

The use of fused nitrate of silver, that has been kept too long in a state of fusion, or heated to too high a temperature, may tend to produce fog. Remedy : add very dilute nitric acid very cautiously, or try an older collodion.

An old bath, highly charged with impurities, may lead to fogging. As a palliative, add bicarbonate of sodium till a permanent precipitate falls, and then expose for several days to the sun. Filter, and acidify if necessary.

Sometimes an old bath will lead to fogging, not by reason of impurities, but simply by having become too weak by mere exhaustion of the silver. This will be more apt to happen with baths whose evaporation is checked by being kept covered. Remedy : add crystals or fused nitrate of silver.

Or the *collodion* may be in fault. A very new collodion, especially one containing little or no alkaline salt, particularly if used with a nearly neutral bath, will sometimes refuse to give clean, bright pictures.

In this case, especially if the collodion be very pale, it is well to add to it a little tincture of iodine, and so apply the remedy to it rather than to the bath. Or the admixture of a little old (but not too old) and more highly-coloured collodion will be found useful.

The *developer* may be in fault. If, when thrown upon the plate, it becomes almost immediately muddy, more acetic acid is wanted. Or, a developer that has hitherto worked well, may cease to do so in consequence of a change of weather and temperature.

It has been affirmed that *excess of acetic acid* may produce fogging.

If copper be used in the developer (sulphate of copper, blue vitriol), and the plate has been left in the bath for a time insufficient to convert all the soluble iodides into iodide of silver, *brown fog* may be produced by the formation of iodide of copper in the film.

Old specimens of pyrogallic acid, used in developing or redeveloping, have been known to produce *blue fogging.*

On the use of Ground Glass in the Studio.

There is, perhaps, no question in which the professional photographer is more interested than that of how best to construct and light the studio, and very few on which more has been written or in connection with which more conflicting opinions have been expressed. So far as regards the size and form of the building, the artist is not in all cases free to carry out his ideas of what would be most suitable for his work, but is constrained to adapt the studio to the situation, and make the best of the convenience at his disposal. In the matter of glass, however, he is generally at liberty to give free play to his fancy; and, judging from the many glass houses we have seen, the fancies of photographers are varied indeed. They have studios with ordinary greenish crown, studios with colourless sheet, studios with various shades of blue, and studios with ground glass; and some of them, as if undecided as to which was best, indulge in a combination of all three.

The relative merits of the various kinds of glass have frequently been discussed in our pages; but we are induced to

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Instantaneous Baby Cameras, to take two Pictures on one Plate; no shifting out the focus glass to put in the plate holder: done in a moment.

recur to the subject again in consequence of some experiments which recently had an opportunity of seeing tried in the studio of one of our most extensively employed and most fastidious professional friends. The studio in question is built strictly according to the fancy of the proprietor, and is nearly square measuring some thirty feet by twenty-five, and glazed to the floor on all four sides. Originally it was fitted with a most complete arrangement of curtains, and was found for all ordinary purposes to answer admirably, as the sitter might be placed in any desired position and lighted to any extent in any direction. As, however, he numbers amongst his *clientele* a great many babies and children—of whom, although he advises his neighbours to fight shy of them, he seems very fond—he soon found that sufficient curtain power to keep out sunlight rendered too long exposures necessary, and so set about devising a scheme that would overcome the difficuly.

Blue glass was first tried, but only to be abandoned in a very short time—the loss of light, notwithstanding what has been so often said to the contrary, having been found to be considerable, while the unpleasant effect of direct sunlight still remained. The pictures were undoubtedly softer, but they were wanting in that vigour and billiancy which is a usual characteristic of our friend's work; and the unnatural, we might almost say offensive, blue appearance given by it to everything and everybody in the room was such that neither sitter or operator could get reconciled.

The blue glass soon gave place to ground glass, in the hope that it would put an end to his troubles; but, when weighed in the balance of actual experiment, it was found miserably wanting. The quiet, subdued light which it transmitted was undoubtedly very pleasant when the sun did not shine, but then that was just the time when it was not wanted; and when the sun did shine the evil was intensified a thousand fold, as every little facet of the ground surface projected in a straight line into the studio a miniature sun of such dazzling brightness that our friend declared it would have blinded him in a week. Nor was this

all: the loss of light was such that an exposure of nearly twenty-five per cent. longer was required than with the ordinary glass. This, or at least a loss of light to this extent, we were not prepared for; but on tentative trial, by placing a piece of sensitised paper in the printing-frame, one half covered by a piece of polished plate and the other by a plate with one surface ground, we found that our friend's estimate was not far wrong. Of course the ground glass was at once removed and replaced by ordinary crown as at first, and the whole studio fitted with perpendicular louvre boards, each just the breadth of a pane. These were made of a very light frame of wood and covered with green cloth which does not in the least fatigue the eye, and produces a very pleasant effect in the house; and, as they are not hinged, but simply fixed to the astricals by hooks, any number of them can be removed in a few minutes whenever a large open expanse of glass is required. By this arrangement our friend thinks he has got his studio into a completely satisfactory state, and, as we saw him making first-rate negatives of some troublesome "little ones" with an exposure almost instantaneous, we think he is not likely to make further alterations.

Although the result of these experiments is condemnatory of the general use of ground glass in the studio, there are circumstances in which it is of much value, and where it is to be strongly recommended. In cases, for example, where one side of the glass house is within a few feet of a dead wall, and where the only light that can find entrance is that which the wall reflects, the ground glass will be found of very great use. Of course if the wall could be whitewashed matters would be much imrpoved, but neighbours are not always willing to oblige the photographer by allowing him to do so. An experiment, recorded we think by the late Sir David Brewster, shows that a large increase of light can, under the circumstances, be easily got in a very simple way. He was anxious to decipher the inscriptions on certain brasses in a vault lighted by a single small window, and as it had opposite, and within a few feet of it, a high, dark-coloured wall, the light admitted was hardly more than sufficient

to make darkness visible. The veteran scientist, however, knew well how to turn his scientific knowledge to practical account, and so got a friend to hang on the outside of the window, and flush with the wall, a white "blind" in the shape of a pocket handkerchief—not for the usual purpose of keeping the light out, but to send it in—and so was able to read the inscription easily. The explanation is, of course, quite simple. The only light that could reach the window came direct from the sky and, as it fell on the glass at an acute angle, it was nearly all reflected at the same incidence; but when the window was covered by the white cloth there was no highly-reflecting surface to throw it off, and so a considerable quantity of it was transmitted. If the side of a studio so situated be glazed with ground glass, having the ground surface on the outside, the increase of light from this cause will be such as to astonish those who have not turned their attention to the subject.—*British Journal.*

"And so my friends I would have you

"Look here, upon this picture and on this--
The counterfeit presentment of two studios;
See with what care and taste this studio here
Is kept; a place for everything in use,
For every needed thing its proper place.
The sunlight fills the room, cheerful and bright,
Each polished point reflects again the light;
No mass of dust comes floating on the air—
What pleasure and what comfort working there!
In waiting-room the mellow light subdued,
The perfume of fresh flowers on entrance greet
Each visitor, who, unknowing, the habit dons
Which pleasing impress gives to human face divine.
In closet dark where we our magic work,
And raise loved forms to please and gratify,
This little den's in perfect order kept,
So that moving with closed eyes one could
His incantations work.
This is the place. Look you now on this;
The sun bright from without seeks through the damp
And dirty glass to cast reflections on
The dirt and damp which coateth all within.

Disorder the fixed order of the place—
A place for everything, yet nothing in its place.
A waiting-room, neglected and mildewed,
Hair growing up from seats of broken chairs;
On walls chipped frames and faded pictures hang.
A litter of fair faces spotted o'er
With finger marks and dust on table strewn.
A little room for working out the spell,
Dark in its arrangement as in its light—
A problem it, unsolved by him who made it.
And so from day to day he picks his way
'Midst failure and success, where success sure
Would greet him, if he a little care bestowed.

"Judge of the two pictures, friends, and go put your houses in order."—*British Journal.*

NOTICE.

In order to prevent any future misapprehension on the part of our friends, we now definitely state the terms of competition for the Gold and Silver Medals in September. It will be seen that one or two important alterations have been made at the suggestions of our readers—we have determined to reduce the *number* of negatives, and also to allow only those which have not been *retouched* to compete—we believe this will render the contest fairer and induce a greater number to exhibit—the rules are therefore as under:

1 C. de V. Full length portrait.
1 do ¾ " "
1 do Vignette.

The three above negatives must be from different subjects.

1 Cabinet full length portrait.
1 do ¾ " "
1 do Vignette.

The same subjects will answer both cards and cabinets, but would prefer different.

Competitors keep the negatives and send us prints only.

No negatives to be retouched.

The successful competitor to send the negatives to us to print from for our October JOURNAL. Such negatives we will return after we have printed what copies we require.

There must be no name on the prints.

Each lot of prints must have a distinguishing mark, and each competitor must send a sealed envelope with a similar mark upon it, which envelope must have the name and address of the sender.

No city photographer can compete.

The judges will decide which photographs are entitled to the prize, and will then open the envelope bearing the distinguishing mark and announce the name.

All prints must be in our hands by 15th Sept.

Our Chair is just the thing. Try one.

In making negatives for enlarging, thin your collodion a little, expose fully, and don't develop too far, you will thus have a thin negative, giving plenty of detail.

If you want a negative that will enlarge sharp and good, you must use the Ross Lens, as no other lens will give the same sharpness and fine result. We warrant each Ross to be perfect or no sale.

Mr. Greer writes us saying, we may praise our Collodion as much as we like, and put his name to it. Thanks, Mr. G., every one admits our Collodions are the best on this continent.

EWING & CO.

Mr. Moles says he would not attempt making pictures unless he had Ewing's Collodions to work with. He has tried collodions of a great many makes but prefers Ewing & Co's.

We test all our chemicals before offering them to the public. You can rely on the purity of any goods bought at Ewing & Co's.

Ewing & Co. have a fine assortment of Mats, both American and English.

FOR SALE.

A GALLERY in a good town, west, either with or without Furniture and Fixings. Price low.

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AN ARTOPTICAN, or new style Magic Lantern, entirely new. Latest improvements, &c., &c. Price $50.

FOR SALE 1 gem box, takes 4 on ¼ plate, reversible, been in use three months, good as new, a bargain.

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6½ x 8½	$1 00
8 x 10	1 25
10 x 12	1 50
12 x 16	2 00
Full Sheet	3 00
25 x 30	4 00
Sketch, 25 x 30—Canvas	5 00

First-Class Artists engaged to finish in Ink, Crayon, Water Colours, and Oil, at moderate prices.

References kindly permitted to EWING & Co. All Orders sent to their address will have my best attention.

F. W. KERRISON.

Mr. F. W. KERRISON, who advertises in this issue of the Journal to do Copying for the Trade, was in our Photo. Department for the past two years, and we can recommend him to those of our Customers who want any work such as he advertises done.

WANTED.

A SITUATION by a retoucher or operator, accustomed to general management of a Gallery. Salary $12.00 per week.

Apply to A. J. HERBERT,
Waterford.

Mr. Herbert sends us nicely made samples of his work. EWING & Co.

Ground glass substitute at Ewing & Co's.