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GEORGE W. GILSON, - - EDITOR

AMATEUR VS.
PROFESSIONAL.

BY M. P.

The "What is an Amateur" controversy is making its annual appearance in the English Photographic press. The struggle to determine just where to draw the line seems to wage as fiercely as ever with some classes. On some professionals the mere mention of the amateur seems to act like a red flag would to a bull. With them the definition an amateur would be one who keeps well into the back woods and does not interfere in any way with the business of any person who may for the time being call himself a professional photographer; who does not photograph anything living or dead, neither man in any of his seven ages nor woman in any age, for verily this is the field of the pro-

fessional (of the kind), and the field of the amateur is down back of the barn, where he can immortalize the rail fence or the old Tom cat. Even then should the fence figure in a law suit and want the amateur's negative to prove that it is a respectful and, with all its crookedness, an honest fence, standing on its own ground, the amateur must at once cast his work to the winds and send post haste for the professional.

Be it admitted that there are amateurs and amateurs, must the fact that of the many there be found a few who bring discredit upon the art by trading upon the statement (not the fact always) that they are amateurs, to cut and direct work away from its legitimate channel; must for this reason the awful cry of amateur vandalism be raised until one is almost ashamed to pursue his chosen pleasure? As opposite to this class of professionals we find those who recognize in the amateur one who has played no inconsiderable part in placing photography where it now stands, and through whose agency the art side of photography has been raised until it now stands well up with that of painting and kindred arts. Does anyone really know of an instance where the true amateur, and by this is meant the large majority, has taken the bread from the professional's mouth, or injured his business

in any way? There may be other causes of complaint or anger, or of amazement may be, at certain displays of "nerve," but that they have brought ruin in their track, as one would think, to hear some of our profession talk, is all rot—which is strongly expressive if not elegant.

The professional of the present day should be above petty jealousy of the amateur. The field of the professional, so far as his direct means of living is concerned, is almost purely that of portraiture, and in this he still reigns supreme.

Photography of to-day has grown to such an extent and has so broadened that the relation of the amateur and the professional has, so far as interference goes, grown farther apart. At the same time, in direct ratio, has the progress of each towards a common end, viz., the advancement of the art of better, more artistic photography, joined them closer together.

QUALITY IN A NEGATIVE.

BY WILL LUSSIER.

Did it ever occur to you what makes the printing qualities in a negative? Some photographers have an idea that all that is necessary is to pour developer on, and the quality will be there; it makes no difference whether they are using gelatine or collodion paper, their negatives go through just the same process. Negatives must be made for the kind of paper used; if it be gelatine, a snappy or rather a bold negative with good detail must be made, as it is a softer printing paper than any other prepared paper. For collodion paper a good timed plate with a softer developer with full detail will print better. For mat surface, about the same quality as for gelatine paper. The color of the film has as much to do with the printing qualities as the density, and the

proper printing color is an olive color, not a yellowish green, as I oftentimes have seen, nor a grey. The grey will make a beautiful looking negative, and will be very pleasing to the eye, but it will fool you in printing. The Eiko-Hydro is a very popular developer, and is a good developer if used right. The following formula gives the required results and the proper color. It is compounded for the Cramer plate, but I find it works good on any plate or film. It is a substitute for the straight pyro developer:

(A.)

Distilled water (hot)..... 60 oz.
Sulphite soda (crystal)... 3½ "
Dissolve above, add
Eikonogen..... 1 "
After above is cold, add
Pyro 100 gr.

(B.)

Distilled water..... 30 oz.
Carbonate potash..... 3 "
To develop take
"A" 2 oz.
"B" 1 "
Water..... 2 "

The reason for substituting the pyro for hydroquinone is to give the color to the film, and it has the same action on the high lights. You can get any quality in the negative you desire by adding or reducing the quantity of water.

FLASHLIGHT PHOTOGRAPHY.

BY DR. HUGO ERICHSEN.

Generally flashlight photography is supposed to be a suitable pastime for the long winter nights, and it is usually practiced only at the time of the year when the ground is covered with snow and Jack Frost is king, and relegated to obscurity as soon as nature again puts on its vernal raiments and out-door photography becomes possible once more.

I believe this is wrong. In many respects summer is better adapted for taking flashlight pictures than winter, for doors and windows may be opened wide during the warm season for the egress of the stifling smoke that fills the rooms after any considerable use of magnesium powder. Lately, I understand, aluminum has been used for flashlight photography and is said to have been quite satisfactory. It is claimed that it produces less smoke and a light of greater intensity than that of magnesium.

The amateur will do better to purchase his magnesium powder ready made than to attempt to manufacture it himself, for it is made of highly explosive ingredients. Only recently the workshop of a photographer who was compounding some of the dangerous stuff—I think it was in Chicago—was totally wrecked, and the poor fellow was instantly killed and his remains mutilated beyond recognition. Especially those recipes containing chlorate of potassium are exceedingly explosive and should be avoided, and flashlight powders that are known to contain that ingredient should never be used under any circumstances. Amateurs had better leave the manufacture of flashlight powder to those who make a business of it, but if they should be resolved to make it themselves, I know of no better mixture than the following: Three parts of finely powdered permanganate of potassium to four parts magnesium powder. But even this compound may explode, so that I must repeat my warning. Only to one who does not value his limbs and life is the manufacture of flashlight powder a delightful occupation.

Those who propose to take but a limited number of flashlight photographs will find the Blitz-Pulver cartridges, that may be obtained from any dealer in photographic supplies, of the greatest usefulness. I do not desire to specify any particular kind ;

those that bear the name of a reputable firm may be relied upon. In igniting these cartridges great care should be taken. After severely burning my fingers in lighting the first one, I evolved a plan which has been successful ever since and which may prevent others from burning their digits. I take a long piece of paper, fold it several times, and then place one end of it under the fuse while the other hangs loosely down and is lit when everything is ready for the exposure. This method gives enough time to the photographer to get to a distant part of the room, in case he wishes to photograph himself, or to be included in a group or interior. To one who desires to make many photographs by means of this artificial light, a flashlight lamp becomes indispensable. There are many different designs on the market, varying in price from one to five dollars, but anyone possessing ingenuity can make one himself at small expense. The principle is the same in all of them. The component parts of these lamps are a receptacle which holds some material saturated with alcohol, another filled with the magnesium powder, and rubber tubing and a bulb by means of which the powder is blown through the alcohol flame. Lamps of simple construction are often the best and should be preferred to complicated ones.

Flashlight photography is especially adapted for taking interiors, groups and portraits. It is impossible to give specific rules, as so much depends on circumstances and individual judgment. The best results will be obtained with rapid plates, quick lenses, and large stops. In taking flashlight photographs of interiors or portraits, I generally focus on a lighted candle, which is held on a plane with the person about to be photographed or which is placed in the most distant part of the room. It is almost impossible to focus with

the ordinary gas or lamplight, but this little scheme with the candle does very well. When the proper focus is obtained, the plate-holder is inserted, the slide drawn, and then everything is ready for the exposure. In making the latter care should be taken to prevent the light rays from entering the lens directly, as this would fog the plate. Whenever possible the flashlight should be touched off at one side and behind the camera, and at a height of four or five feet from the floor.

Portraits and groups are best taken by means of diffused light, which is easily produced by placing a screen of white cloth before the source of light. One of the drawbacks of flashlight photography is the strong contrast which it produces, but this may be obviated to a great extent by giving more than one flash. Reflectors of white cloth and paper are also useful.

In conclusion I want to say that there are many men who are prevented by their profession or business from photographing in the daytime, but who would find flashlight photography an agreeable pastime that could be practised every night in the year, and would leave an occasional holiday for landscape photography and out-door work.

SUCCESS OF A SUCCESSFUL PHOTOGRAPHER.

By W.

Don't misunderstand me in the meaning of this. It only hits those that have not made a success. Business can be done in a photograph gallery as well as it can be done in any other business that requires intelligence. Men are waking up from that long dream about our forefathers' methods of doing business. In those days people felt that it was an honor

to sit for a photograph made by the leading photographer of their city, but now it is an honor for the photographer to have them sit. That is the reason it is harder to do business now-a-days. Some will make a grand success by putting their gallery on the ground floor. I agree with them, for I know a photographer that has made a barrel of money in only four years. It is convenient for a person to get to and from your reception room. I heard a lady say to one of the lady clerks in a ground floor gallery, "I was just passing, and thought I would step in and price your photographs. I was coming down the street and I saw some very pretty baby photos, but I could not leave my baby down stairs, and surely I could not climb them, and my baby screams every time I take it into an elevator, so I stepped in here." The people claim it takes too much time to go up two or three stories just to inquire for photos, but if they are stuck under their noses they will notice them. They get a chance to see the pleasant faced reception-room clerk, and when they enter, if a clerk will meet them at the door with a smile and escort them to where their finest samples are, and then and there interest them, you impress them at once and most likely you will catch them for photos that day; but if not, they will go away pleased and will tell their friends how nice you have treated them. That brings their friends. Don't make people think that it is their money and nothing else you want, although keep in mind you want their money. Make more than one negative so that the clerks will have something to sell. Anyone can take an order for a dozen photos off of one negative. Do not disappoint your customers if possible. Get extra money for extra negatives, and bear in mind the retouching has to be paid for. Make your customers think that they will have personal attention



MOTHER AND BABE.

Photo by A. L. JACKSON, Tacoma, Wash.

A Gem from the P. A. of A. Convention.

from the operator. When the negatives are finished see that they are nicely printed and the patrons pleased, then the clerk can show them that an enlarged picture is just the thing to present to their husband or wife, as it might be. Put the enlarged picture in a suitable frame, and most every time you will sell it. If they don't want an enlargement tell them a photo tinted would look very pretty. Every point in the business must be looked after. It is the few dollars picked up here and there that counts, not the one dozen cabinet business. I have heard remarks made by the clerks, "Would you like cabinets?" and down go their names for cabinets instead of trying to get larger orders. Now, my good readers, these are some of the methods adopted by the successful photographer. The operating-room, etc., will be in our next issue.

OPTICAL WORKS OF MESSRS. ROSS & COMPANY.

The fact that Messrs. Ross & Company have lately added an important new department to their manufacturing business, prompted a representative of an English contemporary to call at the works on Clapham Common and ask to see something of the machinery used and the methods of working employed. His request for information was readily granted, and, thanks to the courtesy of the works manager, much very interesting matter was collected.

There is a popular idea that what is called "trade secrecy" is greatly relied on to restrict competition in the optical industry. Such is not the fact in the case of Messrs. Ross & Company. No secrecy is maintained as to any part of the lens-making processes; but the sub-division of labor, and the multiplication of labor-saving machinery, is carried to

such a point as to defy competition upon a small scale. These works are far too extensive to be properly described within the limits of a single article.

We pass quickly through the office and the large room in which a number of photoscopes and other cameras, telescopes, binoculars, microscopes, etc., are temporarily warehoused, ready for shipment, and enter the glass storage-room.

This room, situated near the entrance hall, contains many thousands of pounds' worth of the optician's chief raw material, still in the unpromising-looking form in which it arrives from the glass works. One of the large manufacturers did, indeed, at one time send out optical glass which had been roughly moulded to the forms of lenses, and then very patiently annealed while embedded in a quantity of diatomaceous earth. Unfortunately, it was found impossible to produce by this means a glass sufficiently homogeneous for the highest type of optical work. Notwithstanding the amount of labor that could be saved in this way, in the "roughing" department, it was preferred to discard this plan. Nearly all the material stored in the room under our notice is, therefore, in the form of irregularly shaped blocks, varying in size. Small nuggets of glass are mostly of the kinds especially adapted for microscope work; and many of them, possessing very valuable characteristics, are remnants of meltings of which the secrets have died out, perhaps irrecoverably. The large slabs are, as a rule, telescope object-glasses in embryo. All the raw material here stored is classified by numbers, corresponding to numbered specifications in a general catalogue of optical glasses. The walls of the room are lined with cupboards and shelves having compartments numbered as described.

At the window of the glass storage-

room a cradle is erected, for the reception of telescopes which have to be finally tested by the manager, and adjusted or otherwise modified as may be necessary. The test objects (optotypes, etc.) are fixed on the wall of a building forming another part of the works and situated about thirty or forty yards away. For these purposes one of the most useful "objects" is the reflection of the sun from a polished globe.

In the grinding-rooms we see in operation a large number of optical lathes. The headstocks appear to be all of much the same pattern, having a coned front bearing and plane back bearing, with, of course, an adjustable point. Some of them are set horizontally and others vertically. Brass tools are used, in the form of interchangeable chucks, and zinc or tin trays are provided for the emery and water. Edges are ground by the aid of a jacket or clip of thin sheet iron, drawn tightly around the rotating glass, and fed with emery and water. Slitting is done with a rotating iron disc fed with diamond dust and turpentine. All of this "roughing" machinery is operated by power.

In the polishing-room are lathes similar to those used for grinding; but here rouge and water on a pitch surface replace emery and water on brass. Also the treadle is used in preference to steam power, as giving more perfect control over the speed of the tool—which must always be slowed down before the polished work is removed from it, lest the glass surface should be injured.

To centre the polished lenses, for the purpose of edging them, a tool is used which consists of a pair of lightly-mounted arms—levers of the first order—pivoted near together at one end, where they are cranked inwards. The cranked extremities of the levers, which are approximated to one another by spring pressure,

embrace between them a portion near to the edge of the lens which is being centred. On rotating the mandrel of the edging lathe, should the lens have been properly fixed, the levers will remain perfectly motionless; but in the contrary event, if the lens be eccentrically mounted, the pointers will indicate, on a much exaggerated scale, the direction and magnitude of this error.

For the spherometry of lenses, the use of a very accurately turned ring of rectilinear cross-section is preferred in place of the three-point arrangement. Many instruments of precision, as well as the heavier machines used in the above-described processes, are imported from Germany, where most attention is given by lathe-makers to the special requirements of the optician.

Thickness is measured between a horizontal plate and a light vertical plunger, suspended by a chain passing over a pulley and nearly counter-balanced. The graduations, which are read by a microscope, run to tenths of a millimetre, and the estimation can be carried to thousands by the aid of a vernier and micrometer-screw.

A most carefully finished glass templet or test-plate (probepatte) is used for the final examination of lenses ground to a standard size. The finished lens, freed from dust, is brought over the test-plate, and must, after equalization of temperature, show a uniform interference-color.

The cementing of lenses is carried out in a room furnished with a hot-plate and a saucepan of balsam. The workman is guided here merely by the edging of the lenses. (A piece of corkwood affords him the necessary grip on the glass surface.) Next, the cemented lens is chucked on a peculiar holder, which consists of a horizontal steel mandrel, terminated at the "business end" by a coned ring. The sharp edge of the ring is outer-

most, of course. Pitch composition is applied to the annular portion of this chuck, exterior to the ring, and also in the cupped space within it. The lens is pressed home into contact with the ring, some of the composition being exuded. Then the optical test for centering (reflection of a point of light) is applied. To re-soften the balsam, for purposes of re-adjustment, nothing more is necessary than to apply a spirit lamp below the mandrel. Heat is conducted to the lens through the metal ring. It need scarcely be remarked that the final adjustment in this way of a quadruple cemented lens is no light task.

The microscope hands in these works make their own grinding tools of iron or brass. Frequently the o.g. lenses are chucked on a lathe mandrel and the tools are applied thereto by hand instead of *vice versa*. Tools for the heavier class of lens-grinding are, however, made in one of the machine shops. The lathe used is provided with an especially firmly constructed slide rest for spherical turning. Brass tools (by the way) have been found to cut better than iron ones, as the emery embeds itself in the softer metal.

We are prevented from describing the machine tools used in the manufacture of telescope and microscope mounts, photographic cameras, etc., simply by the limitation of the amount of space at our disposal.

Messrs. Ross show considerable enterprise by the frequent introduction of apparatus on new models. In particular, they have recently improved several forms of projection and enlarging lantern, and have worked out a new horizontal pincenez (registered), and a new series of very superior binocular glasses with the finest lenses. These latter it is intended to make a special line this year. They can be recommended to opticians everywhere with the greatest confidence, and can be supplied

on terms as favorable as those on which the better class of binoculars can be purchased in Paris.

An important point is that optical and photographic apparatus is manufactured *throughout* by this firm. The fitting and machine shops are very extensive, and include the appliances for tube-drawing, forging, etc. Spinning is extensively resorted to in the working of aluminium mounts for binoculars, etc. This metal is *not* annealed during the spinning process. Sewn leather coverings or envelopes are wetted and then drawn over the metal mounts, upon which they shrink. Several skilled workmen have been "imported" from France by Messrs. Ross & Company, on account of their special expertness in binocular making. It is only within the last three or four years that those branches of instrument-making which have been so thoroughly perfected in France have been developed in this country. We must not omit to say that there is a shop entirely devoted to japanning—an art in which continental methods are also employed. The work done is of the finest quality, finished by polishing, like silver plate, with the palm of the hand.

THE INFLUENCE OF HYPO ON THE METOL DEVELOPER.

By DR. J. M. EDER.

The influence of hyposulphite of soda on the metol developer is a question worthy of research, and it gives me pleasure to make known my experiments in this direction.

It will no doubt seem strange that hyposulphite of soda should have a beneficial effect in any developing solution, the characteristics of this chemical rather foreshadowing a deleterious influence. This is, however, not so in practice, the presence of hyposulphite of soda in small quanti-

ties being of great advantage in metol-developing solutions.

My primary experiments consisted of a comparison of the following formulæ:

A.

Water.....1,000 minims.
Metol..... 15 grains.
Sulphite of soda... 150 grains.

B.

Water.....1,000 minims.
Carbonate of soda. 330 grains.

Twenty parts of A to ten parts of B, and thirty parts of water were then mixed ready for use.

A pyrogallic acid developer of normal strength was then prepared as follows:

A.

Water.....1,000 minims.
Sulphite of soda.. 200 grains.
Pyro..... 28 grains.

B.

Water.....1,000 minims.
Carbonate of soda.. 100 grains.

Twenty parts of A, twenty parts of B, and parts of water were mixed ready for use.

These two solutions were placed in separate trays. A number of plates of one emulsion were now exposed under a Warnerke sensitometer, thus assuring equal exposure, and a plate was placed into each solution of developer at the same moment. The development was continued until the number of the sensitometer representing the speed of the plate was of like density on both plates.

Upon fixing the plates it was apparent that the negative developed with metol, although showing greater details, was not quite as brilliant as the pyro negative.

Further test was made with new solutions prepared by exactly the same formulæ, adding to the B solution of the metol development 1, 2, 3,

5, and 10 parts of hyposulphite of soda. The developer which contained one part of hyposulphite of soda gave a result equal in brilliancy in every respect to the pyro developer, with fine contrast and an absolute clearness. The absolute clearness from fog in the metol solution thus prepared was remarkable, and in many respects the negative was to be preferred to the result obtained with pyrogallic acid.

The addition of hyposulphite of soda to the metol developer acts as a retarder to a certain degree, and certainly prevents fog. Greater detail is obtained than without its use, although if the hypo is increased in quantity the effect is exactly reversed.

Satisfied that this subject was worthy of further research, I experimented for some time with the following:

METOL-HYPO DEVELOPER.

A.

Water.....1,000 minims.
Metol..... 15 grains.
Sulphite of soda... 150 grains.

B.

Water.....1,000 minims.
Carbonate of soda.. 330 grains.
Hyposulphite of
soda..... 1 grain.

For studio work I found best suited forty parts of A, twenty parts of B, twenty parts of water. For landscapes, twenty parts of A, ten parts of B, thirty parts of water.

In my experiments I invariably tested this developer against a normal pyrogallic-acid developer (which I had previously adopted for general use in the Academy, and found that metol-hypo developer prepared after the above formula gave most excellent results for both portraits and landscapes, and that the results were fully equal, if not superior, to pyro developer.—Photographic News.

A SHORT TALK ON NEGATIVE MAKING.

(From Hammer's Little Book.)

Plates should always be kept in a dry room. The dark-room, or developing-room, is usually damp and poorly ventilated; for that reason it is not a safe place in which to keep gelatine plates.

The room in which plates are handled and developed must be a perfectly dark room, save for the light from a small ruby or orange colored window (or one containing a combination of these colors), by which the progress of development can be watched. If possible, have an abundance of pure running water, and provide good ventilation. You will have better negatives and better health by so doing.

The window in your dark-room which illuminates the sensitive plate during the process of development must be as non-actinic as possible. There is no such thing as a perfectly safe light. Any light of sufficient illuminating power to be of practical use will affect a very sensitive plate, if given time enough; it is therefore necessary to use great care in developing. The best and safest light for your dark-room window is a combination of ruby glass and orange paper, commonly called postoffice paper. This is easier on the eyes than ruby glass alone, and by its use the quality of the negative may be more easily determined. Use a lamp or gas-jet outside to illuminate the window, as it is safer and more uniform than daylight.

Test your light in this way: Place a Hammer Extra Fast plate in the plate holder in total darkness, draw the slide sufficiently to expose one-half of the plate, and allow the light from your window, twelve to eighteen inches distant, to fall on this exposed half for three or four minutes. Then develop the plate for the usual length

of time in total darkness. If the light is safe there will be no darkening of the exposed part. If not safe, the remedy is obvious.

The Hammer plates possess the desirable quality of extreme sensitiveness to red and yellow rays, and may consequently be affected by a dark room light that would not injure a plate possessing less of this quality.

The best chemicals are always the cheapest. Keep bottles well stoppered and labelled; otherwise you will be dealing with uncertainties. In preparing developers, pure water is very important. If water from well or hydrant is used, boil it, and filter when cool. Accuracy in weights and measures is important. Sulphite of sodium should be kept in bottles with close-fitting glass stoppers, to protect it from the air, which will cause it to decompose and become worthless. If the hydrometer is used in preparing developer, for testing the strength of sulphite of sodium, or carbonate of sodium or potassium, the solutions must be of uniform temperature or great variations in strength will occur. Hyposulphite of sodium (fixing) solutions should be prepared in bottles and filtered into grooved boxes for use. Such solutions are best when freshly prepared.

No two developing agents are alike in their results. Pyrogallic acid, eikonogen, metol and hydroquinone, or combinations of two or more of these, are generally used. In this little book we give a variety of formulæ which are in daily use and give excellent results. The conditions under which individuals must work are so varied that one particular formula cannot be applicable to all. When strong, vigorous printing negatives are desired, pyrogallic acid in combination with either carbonate of sodium or carbonate of potassium is generally preferred, although by dilution and modification as much softness and detail can be produced with

this as with any other developing agent. Eikonogen or metol is generally preferred, however, when soft, delicate negatives are desired; the addition of hydroquinone to eikonogen or metol solutions produces more contrast, or greater strength in the high lights. Overtimed plates, which would be flat and worthless if developed in normal developer alone, may be greatly improved by adding a few drops of bromide solution (ten ounces of water to one ounce of bromide of potassium) to the developer as soon as the overtimed condition of the plate is apparent. More bromide will be necessary in metol developer than in any other. A plate slightly undertimed should be removed from the normal developer as soon as its condition is known, and, without washing, placed in a tray of water where no light of any kind can reach it. If this treatment brings out the detail of the shadows where there has been but little action of light, in thirty to sixty minutes, it may then be developed in normal developer, in a dark place. If much undertimed, it is better to destroy the plate and make another exposure. Sulphite of sodium is used in developers to give the negative the best possible printing color. If the quantity is insufficient, or if it has decomposed by continued exposure to the atmosphere, the negative will be of a yellow, slow printing color. It is not always necessary to use the precise amount of sulphite mentioned in our formulæ; frequently less will be sufficient, and sometimes more will be required, the amount depending upon the condition of the water used in the developing solution.

Quick development, with strong solutions, means a lack of gradation, a forcing up of the high lights before the developer has time to act on the less exposed parts. Good results can only be obtained by slowly coaxing out the detail, so that all parts of the

image come up fairly together. A developer too warm, or containing too much alkali (carbonate of sodium or potassium), will cause flat, foggy negatives. A developer too cold is retarded in its action, and causes thin negatives.

All developers should be carefully filtered immediately before using. If several plates are developed together in a large tray, the edges are liable to strike together, detaching small chips of glass which adhere to the soft gelatine surface. Keep them separated by little strips of wood tightly fitted to the tray.

Uniform results are unattainable without uniform temperature. Formulæ will always be apparently at fault if the solubility of chemicals at different temperatures is not considered. The simple addition of a small quantity of boiling water, more or less, or a lump of clean ice, to the water used in diluting the developer will readily control the temperature of the solutions. Heat accelerates chemical action, cold retards it; therefore, developing solutions should be kept reasonably cool in summer, and used more dilute. Use sufficient developer to cover the plates well.

To fix negatives properly it is necessary to use a fresh solution of such volume that no factor of uncertainty exists. When an unlimited number of negatives are fixed in a small quantity of solution, the bath soon becomes loaded with chemicals, and fails to do its work properly. In cool weather a plain hyposulphite of sodium bath is all that is required. During hot weather use one of the chrome alum and hyposulphite formulæ given in this book, or make a fresh solution for each lot of plates developed. If the latter plan is adopted no alum will be needed. Commercial hyposulphite of sodium usually contains foreign matter, which, if allowed to remain in the solution, will cause spots on the negatives. These im-

purities may be removed by filtering the solution. When the white bromide of silver is just dissolved, the plate is only half fixed. Thorough fixing is as necessary as thorough washing to insure permanency in the negative. Our non-halation plates will require more time in fixing and washing than the extra fast, on account of the double coating.

After the plate is properly fixed, it must be thoroughly washed to remove all traces of the hyposulphite of sodium. An hour's washing in running water is none too much. If running water is not at hand wash at least an hour, changing the water frequently. Before placing the negatives in the rack to dry wipe the film carefully with a tuft of clean, soft, wet cotton to remove any sediment that may have been deposited from the water. The drying of negatives demands more attention than is generally given it. If dried slowly during hot weather the film will swell, become more dense and coarse grained, and cannot yield fine prints. To prevent this result dry your negatives as quickly as possible in a moderate current of cool air, free from dust. An electric fan is very desirable for this purpose.

Failures.

These may owe their origin to a variety of causes, the most common of which are : Overtiming ; too much light in the developing-room ; exposing the plate too long to the light of the developing window ; imperfections in plate holders and cameras, permitting the entrance of light ; reflection of light through the lens ; too much alkali in the developer ; too much warmth in developing solutions ; traces of hyposulphite of sodium or nitrate of silver in the developer ; exposure of plate to white light before the bromide of silver is thoroughly dissolved in the fixing solution. Locate the cause and the remedy is obvious.

There may be so many causes for spots, either opaque or transparent, that we will not attempt to enumerate all of them. Cleanliness in every operation is the only sure preventive. If the dark-room, and also the graduates and trays which contain the developing solutions, are kept clean, the camera and plate holders free from dust, the fixing bath free from sediment, and each plate is carefully dusted before being placed in the holder, very few spots will occur. When the user of plates exercises as much care as does the manufacturer to prevent spots, they will no longer be a source of annoyance.

If negatives are too thin in high lights to make satisfactory prints, this result is usually caused by over-exposure, by using developer too much diluted with water, by stopping the action of the developer too soon, or by using the developing solutions too cold. The results produced by these different causes are not the same, but the difference is so slight that it is not easily described. Such negatives may be strengthened by using the intensifying solution given on another page.

If the development is continued too long, the negative will be too dense. If thoroughly fixed and washed it may be reduced. (See formula for reducing solution.) All developers should be more dilute in warm weather than in cold, to avoid extreme density in high lights.

Plates developed with pyrogallic acid developer will sometimes turn yellow in the final washing. This is attributable to the water. Immerse them in the clearing solution, and rinse well just before putting in the rack to dry. If the yellow color is produced by decomposed sulphite in the developer, or a lack of sulphite, or by decomposed pyrogallic acid, it will show as soon as the plate is fixed. The remedy is the same in either case.

LIGHTING THE SUBJECT.

BY M. A. SEED.

For our plate the subject must be lighted just as you wish to see it in the finished print. This is one great advantage we claim for our goods. An operator, however, could not consistently light all subjects alike. For instance, an old gentleman having rough and strongly marked features should not be placed under the light, but rather away from it, or a head-screen placed over the head, reducing the highlights and filling up the shadows. Whereas, a young lady with smooth features should be arranged under the light, and if there are any disagreeable shadows, a judicious arrangement of reflectors can overcome this. A little face powder put on with a piece of chamois will be found convenient. Just a few remarks in regard to the use of face powder and black crayon.

The articles necessary are as follows: A fine face powder, such as Pozzoni's, a piece of soft black crayon, a powder puff, a crayon stump about one-fourth inch thick pointed at both ends, a one-fourth inch brush with short stiff bristles, a piece of thick blotting paper, and a piece of velvet or chamois.

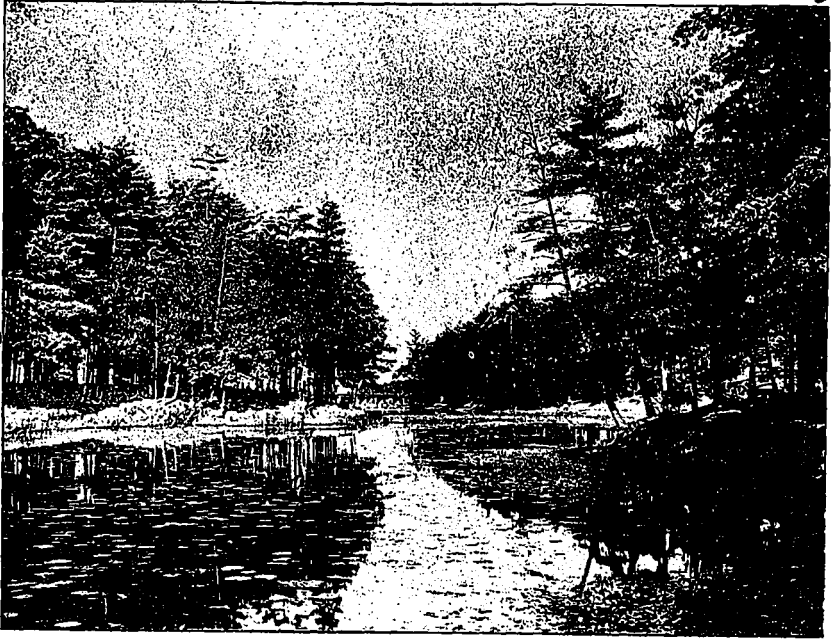
There are certain characteristic features in every face which should be carefully preserved; there are others which, being disagreeable, it would be better to obliterate. For instance, you find that a three-quarter face would be the better view for your subject but for the outline of a high cheekbone. This is very easily remedied with a little black crayon put on with the stump, just enough to bring that portion of the cheek to the shade of the background, so that when you place your eye in front of the lens, the disagreeable feature has vanished, being lost in the background. Same can be done with the tip of the ear, point of nose, chin, etc.

Mouths can be made smaller by the careful use of crayon and powder; unpleasant lines from the corner of the mouth downwards can be removed and more pleasant ones put in their place. Long noses can be made shorter, turned up and crooked ones straight. Eyes can be made of equal size where this is not the case; wide parting of the hair can be made narrow, and many other improvements can be accomplished as the operator becomes expert; and this means not only that results will please your patrons, but an immense saving of labor, both on the negative and prints.

STEREOSCOPIC PHOTOGRAPHY.

At the late Convention of the P.A. of A. Mr. Jex Bardwell spoke as follows on this subject:

"I have noticed lately in walking around the streets of the city that you will see our street merchants having amongst their small quantity of merchandise, a stereoscope and stereoscope slides for sale, and I take it as a very strong indication that there is a demand now arising for that most beautiful branch of photography. I have had the pleasure since I have been here of seeing a stereoscope camera being used on these grounds. In old times they were considered perhaps one of the most beautiful sets of pictures that a family could possess in their homes, and it gave you a truer account of what it represented than any other form of picture. There are many points of view that you might take upon an 8 by 10 plate, some that it would be hard for you sometimes to really find out what the photographer meant when he photographed it, but if that same picture was taken on a stereoscopic slide, although it is but three inches in width, there is nothing in it but what



SUMMER SCENES.

you can see as far as distance, detail, and the object for which it is taken. Now, there are a few little points, in taking a stereoscopic picture, having had a little experience in the matter, which I will speak about. One of the grand secrets of taking a stereoscopic negative is in its foreground. There are many little bits of views that you will come across in your travels that you might not think would take a picture, but being displayed on a stereoscopic negative, it has a beauty of its own which is not duplicated by any other process that we use. Now, in order that a picture may be a perfect one, as it were, there must be serious attention paid to the point of view in which that picture is taken. More so, perhaps, than any other landscape view that is taken, and it depends a great deal upon the proper selection of the foreground that goes towards forming the composition of that picture. In making the negative, a great many in first attempting to take stereoscopic pictures fall into the error of thinking that there should be a certain amount of density in the negative; that there should be some spots of bare glass. A stereoscopic negative wants to be taken thin. It wants to be covered up completely. There are no details in the shades but what want to be shown on the negative, for when you put the slide into the stereoscope it searches into the utmost parts of the object and searches out the beauty of it, and it is fatal to a stereoscopic picture to produce intensity on it. You see, the more you think, how it is that these stereoscopic pictures look as if they were taken in the winter and had so much snow on them. This is in consequence of the negative being hard. A soft negative and all the gradations of light and shade you can get into it, will produce a picture that will be pleasing to you. Another thing; a great many, not understanding the optical part of their

business, mount the picture, thinking that all the pictures they can get on to the slide, so much the better; but it is not so. The real picture of the stereoscopic slide is contained within the distance of two and seven-eighths of an inch from centre to centre of one picture to the centre of the other. You can get the pictures on though, a little larger than that, but the centres of the pictures must not be further than two and seven-eighths of an inch, from the fact that the majority of eyes are at that distance, and if you increase the distance, you must not divide the eyesight of the eyes. It strains them so that it is difficult to see the pictures. Another thing why stereoscopy has gone below, as you might say, is the reason that some firms in the East undertook to flood the country with a large number of very cheap productions. They were sold as low (and perhaps lower) as \$8 per hundred. I want to impress upon your mind that if a stereoscope picture is worth taking at all, it is worth taking well, and will always fetch you the money it is worth, and never sell for below price."

THE PHOTOSCOPE.

BY THE INVENTOR.

This is an opera, field, or marine glass, which can be converted in one minute into a photographic machine, and vice versa, without altering its outward appearance. Being an entirely new departure in photographic apparatus, it will be necessary to give a detailed description of its construction and capabilities. All cameras which have appeared on the market, so far, being simply improvements on others preexisting, require but little explanation, the same principles of construction and action being more or less observable in each case; consequently, it follows that the possessor

of an "improved" machine has very little to learn, providing that he is acquainted with the manipulation of the ordinary camera.

It must have occurred to many how admirably the opera glass, by its structural shape and accurate method of focusing (so well known to all) is adapted to photographic purposes, and one is apt to wonder how so beautiful an instrument should have so long escaped the attention of the ingenious inventor.

Before describing the mechanical and optical principles employed in the construction of the photoscope, it is necessary to explain that when the instrument (which has the triple character of being an opera glass, a camera, and a telescope) is used for photographic purposes, it is held in the reverse way, that is to say, the "hooded" or larger end is placed to the eyes.

It will be as well to mention here that the term "hoods" when used in connection with the photoscope, is not a strictly accurate one, inasmuch as the broad sliding tubes used to shade the objectives from the vertical sun rays are, in this case, utilized as depositories for certain parts of the internal mechanism, such as the roll-holder (or plate), ground glass screen, etc. Of course, when the instrument is reconverted from a camera to an opera glass, the hoods become hoods proper and serve their original purpose.

In experimenting to find a more rapid and accurate method of focusing the photographic image than usually employed, it was found that when a pair of opera glasses were mounted in conjunction with a photographic lens of the same focus, and racked in unison, the focus of both systems coincided.

This principle being established, it was decided to test it in a different manner; and for this purpose, a pair of marine glasses, with hoods and

tubes slightly larger than usual, were made, one barrel serving the purpose of a camera and the other that of view-finder and focuser. To still increase the diameter of the hoods (without widening the space between the eye-pieces) they were joined, thus giving ample room for the internal mechanism.

A pair of twin photographic lenses were then fitted in the cells originally occupied by the condensing lenses or eye-pieces, and a ground glass screen placed in the camera tube, whilst a telescopic eye-piece specially ground was mounted in the other. The instrument was then taken to the top of a building and levelled at a belfry tower about a quarter of a mile distant, and carefully focussed, until the strands of the bell-rope were distinctly visible. It was then found, on magnifying the image on the ground glass, that the details were equally sharp, thus conclusively proving that the two systems of focusing, namely, the telescopic and photographic, exactly coincided. It is desirable to emphasize the fact that, in this experiment, one of the twin photographic lenses acted as a telescopic objective.

It may be pointed out wherein the "photoscope" excels. Being an opera, field, or marine glass independent of its photographic functions, and that form being still preserved when it is converted into a photographic apparatus, it can be used where no other camera is available, and without arousing the slightest suspicion as to the purpose of the operator—which in itself constitutes it a "detective" camera, in the true sense of the word. The focusing being done in the manner of all binoculars, moving objects may be followed and kept in view through the glass until the desired moment, when they can be secured with the absolute certainty of receiving the correct exposure and being in the right position on the plate. This, in itself, is a great ad-

vantage ; but when it is coupled with that of a microscopic sharpness in focusing, the instrument will be admitted to be a valuable power in the hands of those who take negatives with a view to subsequent enlargements. The telescopic principle utilized also permits of objects being taken, and pictures selected at long distances, the milled-wheel and screw system of focusing for this purpose making it vastly superior to the ordinary sliding telescope.

The "photoscope" will be found invaluable to detectives, army and ships' officers, scouts, artists, architects, surveyors, engineers, tourists, and sportsmen, etc. ; it will be specially valuable on the race course and coursing ground, and its elegant shape and ease in handling make it the beau ideal of a lady's camera, obtaining the object as it does without marring the grace of the operator.

It must not be forgotten that in purchasing a "photoscope," the buyer becomes the possessor of three distinct instruments, viz., an opera, field or marine glass, a telescope with an accurate system of focusing unknown before in single telescopes, and an up-to-date camera with movements and appliances far in advance of anything of the kind that has gone before.

Messrs. Ross, 111, New Bond Street, London, having undertaken the manufacture and sale of the patent photo opera glass called the "photoscope," all communications concerning the same should be addressed to them.

THE TONING OF BROMIDE PRINTS.

BY J. PIKE.

A minor department of practice which may be safely left for attention when days are dull and clients few, is the resuscitation and rejuvenation of faulty bromide proofs.

In exposing and developing a dozen or so of bromides, it is very rarely indeed that a percentage of more than eight out of twelve turn out really good and fit without further treatment. If, however, we thoroughly fix, wash and dry the remainder—treat them, in fact, as if they were just as perfect as the others—we shall often find it worth our while at some leisure time to devote a few minutes to them, for it often happens that out of this lot of faulty wasters we can get one or more prints which really may surpass the first and selected prints in tone and brilliance. In other words, the ugly duckling may develop into a swan of wonderful plumage.

It is never too late to mend a poorish bromide provided it has been properly fixed and washed.

I lately found, in a most unexpected place, a roll of bromide prints, 15x12, which, I should think, were at least seven years old—wasters presumably, and yet had evidently been stored away carefully, in the hope of a time coming when something could be done with them. They were a find in their way, being the sole remaining prints of a medal negative which had some time ago gone over to the majority.

The prints were badly stained (iridescent stains), inclined to be mouldy, had some symptoms of light fog, but were fully developed—had been developed with ferrous oxalate—and were of a greenish tinge far from pleasing.

A glance through the Journal in search of information bearing upon the subject was, of course, useful, inasmuch as a variety of formulæ was very quickly discovered.

It is clear that nothing can be done of any value if the fixing of the print has been imperfect, or if the washing has not resulted in a complete elimination of salts. The first thing to be done was, in the absence of any

confidence in what had gone before, to once more fix these prints and wash them. This was done, and they were ready, after drying, for further treatment.

To tone and intensify—for that is usually what it amounts to—is never to be done in the absence of a really effective clearing bath. The surface of a bromide print—or any other film for that matter—is never in a good condition for this operation unless it has a mild, but effective, sort of “shampoo process,” which leaves it in the best possible condition to receive the action of the toning salts.

From the appearance of the stains and fog, Howard Farmer’s reducer was instantly judged to be the best “clearing” agent for this purpose. For my own part, I very rarely intensify without first submitting the film to the action of this excellent bath, and in the present case the prints were, as may be expected, greatly improved. The iridescent stains cleared off, the light fog dispersed; but in one case, that of a print not so fully developed out as the others, it was cleared at the expense of the high lights, which then had rather a chalky appearance. A second washing followed, using gentle friction with wet wool at intervals, to completely clean the surface.

Three toning baths were used. Firstly, the alum and hypo bath of the Eastman Company. Their formula is as follows: Sodium hypsulphite, ten ounces; dissolve in three and a half pints of boiling water, then add gradually one ounce of powdered alum. This bath was made and kept some days before use. It was then warmed to 100°, and two prints immersed therein. They took quite thirty-five minutes to tone, and were distinctly the better for the treatment. There was rather more reduction of density with this bath than I expected; but, as the prints were quite

over-dense to start with, they were all right in the end. The prints were placed after toning in a simple solution of alum (three-quarters of an ounce to the pint of water), then washed and dried.

The second lot were toned with uranium, e.g. :

Mix freshly—

{	Red prussiate of	
	potassium.....	4 grains.
{	Water.....	4 ounces.
	Glacial acetic acid.	150 minims.
	Water.....	4 ounces.
{	Uranium nitrate ..	4 grains.

The prints were not immersed in the above, but, having been wetted thoroughly and attached, face up, to a piece of plate glass, the solution was applied by means of cotton-wool, the whole of the face being well and carefully attended to. Toning proceeded so slowly with this bath that I added a few drops of ordinary “mercurial intensifier” (the usual five per cent. solution), and got, in a few minutes, a very nice dark oak toné, which admirably suited the subject. By surface toning, the risk of staining, degradation of the whites, etc., is reduced to a minimum, and washing, though thorough, need not be prolonged.

The best results were, I think, got by means of the method suggested, I believe, by Mr. Chapman Jones, viz., bleaching with mercury and redeveloping. For this purpose, a fresh bath of mercury bichloride was made, one part in forty of water. Bleaching in this diluted bath proceeds slowly, steadily and evenly. Thorough washing follows. This is once more essential, otherwise development will be local and patchy. Redevelopment is effected with eikonogen, amidol, hydroquinone, or ferrous oxalate, but the solution must be moderately weak, the chloride image being very easily reduced. On the whole, the

results were better with this method, but merely on accidental grounds. The few small, mouldy patches showed up less with this operation than with either of the others, and these, after mounting, were more easily obliterated with the pencil. The operations of redevelopment, etc., may be carried out in daylight. The prints are to be washed and dried.

It is quite clear to me, as the result of these few trials, that, with a little more care, a much higher percentage of successes in bromide printing would result. Let the prints be made the best of at the time, then thoroughly fix, wash and dry the lot; but do not reject, without a trial and due consideration, those which may be below the mark, for something may be made of them.—British Journal of Photography.

PRINTING FROM THE NEGATIVE.

BY C. WELBORNE PIPER.
(From the British Amateur Photographer.)

With any kind of printing process the most important factors in the attainment of successful results are, quality of negative, quality of light, and time of exposure to light.

The first is—so far as printing operations are concerned—a fixed factor; the other two are more or less under the control of the printer, who by varying them can to a certain slight extent make compensation for deficiencies in the negative.

With printed-out images, though different toning agents or baths may be employed, the successful attainment of any desired tone depends almost entirely upon the quality of the negative and of the light by which the print has been made.

If chemical development of the printed image is necessary, very little can be done in the way of modifying the developer to compensate for in-

correct exposure. The degree of dilution may be varied, but an increase of accelerator will probably fog the lights, and an excess of retarder will spoil the tone of the shadows.

If a number of prints are to be made from one negative, equality of result can only be ensured by giving equivalent exposures to a uniform quality of light, and, of course, adopting subsequent uniform chemical treatment. Sunlight, skylight, cloud or diffused daylight, and various artificial lights, vary not only in intensity, but also in quality or character, and they produce images varying in brilliancy and tone.

The higher the quality and intensity of the light the greater is its power of penetration through the deposit forming the negative image, consequently the flatter is the contrast in the print.

The intensity of the light can be diminished by employing colorless translucent screens, such as ground or opal glass or tissue paper. The character of the light can be altered by employing colored transparent screens. With an artificial light the intensity can also be diminished by removing the light to a greater distance from the negative.

Daylight may vary spontaneously, both in quality and intensity; consequently when printing by diffused light in changeable weather place the frames in such a position that they cannot be exposed to sun or sky light in the event of a sudden dispersal of the clouds.

With printing-out processes, the time of exposure necessary, with a light of a certain strength, to bring out the details in the high lights is a fixed factor, and the exposure cannot be shortened to increase contrast without losing detail.

With development processes, short or slight under-exposure can be utilised to obtain greater contrast. Slight over-exposure diminishes con-

trast, but it cannot be adopted without the risk of veiling or fogging the lights.

If a negative of moderate density is flat in contrast by reason of the shadows being fogged, a short exposure to a powerful light will give a more brilliant positive than a relatively equivalent exposure to a weak light.

A thin weak negative will give a more brilliant positive image with a light low in intensity and quality.

A print being intended to form a lasting representation of the subject temporarily recorded on the negative, it is of the greatest importance that every precaution should be taken to ensure permanency.

The greater the number of chemical operations required the more difficult is it to secure permanent results; consequently with processes involving complicated chemical changes every operation must be most carefully conducted, and all traces of chemicals used must be completely eliminated from the film, and also from the support.

If fixation with hypo is necessary, take the same precautions to ensure perfect fixation and washing as with negatives. Both operations must be complete, but neither of them may be unduly prolonged without risk to the permanency of the print.

If a number of contact silver prints are to be taken from one negative, the film must be well varnished, otherwise silver stains will inevitably be produced.

In daylight contact printing, if the light is so bad as to necessitate long exposure it is not only important to varnish the film but also to keep the frames in an equable temperature to prevent the condensation of moisture between the two films.

Negatives that have a tendency to either hardness or weakness will generally yield the best prints by certain processes and will give un-

satisfactory results with other ones. Hard negatives are generally unsuitable for any development process, and extremely thin negatives give the best results by a projection, not a contact, process.

Select a process that is not only adapted to the technical characteristics of the negative but which will also represent the subject to the best advantage.

POINTS FOR CONSIDERATION IN PURCHASING A PHOTO- GRAPHIC BUSINESS.

Our advertisement columns of late have shown, says *The British Journal of Photography*, that there have been, and are, a large number of photographic businesses in the market. This, no doubt, accounts for a number of letters received with reference to the value of the goodwill of photographic businesses—whether it is based upon the gross returns or the net profit, etc. We have also received letters as to alleged misrepresentations in the sale of businesses, based upon the circumstance that the purchaser has not done the same amount of trade that the vendor did, or stated he did.

The value of the goodwill of a photographic business—we are dealing with portrait businesses only—cannot be appraised by any set rule, as is the case with many other businesses, so much must necessarily depend upon collateral circumstances. For example, take two businesses, each making the same returns, say, £1,000 a year. In the one the prices range fairly high, say, on a guinea a dozen for cabinet portraits base, while, in the other, they rule low—half the price or less. Now, it is obvious that, although both businesses return the same gross receipts, there is a vast difference in the net profits of the two. In the latter, con-

siderably more than double the plates, paper, mounts, and material generally are necessary, as well as considerably more labor, though possibly of not quite so expensive a kind; also it will entail more supervision and business anxiety on the part of its proprietor than will the other, which requires a less number of hands for its working. Hence it will be seen there is a very great difference in the market value of the two concerns.

In estimating the value of many businesses, the average receipts for the previous three years are taken as a basis. When this is done in photography, the last year is the most important for consideration, for it is clear that, if this is less than the previous ones, it shows that the business is on the decline. If, on the other hand, it is more, it indicates that it is increasing, and an increasing business is obviously of more value than a diminishing one. Another matter for consideration is opposition in the neighborhood. A business that is surrounded by a considerable number of competing ones is clearly not equal in value to one where there are none or very few. A small business is not worth so much proportionately as a moderate one, all things being equal, because, in the former, a certain number of hands must be engaged, such as reception-room attendant, printer, etc., and there is often not sufficient work to fully occupy their time, whereas there is in the latter. Therefore the labor costs no more in the moderate business than it does in the smaller one, where a larger amount of work is turned out.

Considerable importance is often attached to the number of negatives in store. At one time this was a more important item than we are given to understand it is now, except in the case of publication portraits, because, as prices are now generally much lower than they used to be, so

many, especially ladies, prefer to have fresh sittings in their latest costumes to ordering duplicates from old negatives. Therefore, except in the case of deceased persons or notabilities, a large collection of old negatives is not worth what it used to be in former times.

Here is another point that should be considered in purchasing a portrait business, namely, the lines upon which it has been run for the previous year or two. For instance, a man may start a business in a small provincial town, and by dint of great enterprise work up a good trade in a year or two, which is *bonâ fide* as the books show it; but during the time the residents have become so well stocked with photographs that comparatively few more will be required by them for some time to come. The trade in the place has been exhausted for a period. To use a common phrase, "the orange has been sucked pretty dry" before it is parted with. Purchasers of such businesses have often lamented their bargains, though there was no misrepresentation whatever as to the amount of trade that had really been done.

In a photographic business individuality is a very important factor. In a sense a portrait photographer is somewhat analogous to a medical man. The latter may dispose of his practice, but it does not follow that the patients will be transferred with it, although the new man may be as able a practitioner as his predecessor. The same frequently happens in photography. The new comer may not be so well liked in the studio by the sitters as was the previous proprietor, or may be a neighboring artist may be liked better, yet his work may be, photographically, as good, or even better. Of course, that is a matter the vendor of the business cannot control. We have known in cases of this kind of allegations being made that there had been fraud and

misrepresentation as to the returns, though, of course, they were groundless. We should not for a moment say that there has never been misrepresentation in the sale of a photographic business, because we know there often has been, as there has been in the case of most other businesses.

Here is another point to have in view when buying a photographic business. It is customary to bind the seller over not to carry on a similar business within a certain radius. That, of course, does not apply to any of the employees. If the studio has been much left in the hands of an operator, who is well liked by the sitters, and he leaves and starts in business for himself, or enters the service of another photographer in the neighborhood, the business of the old concern is likely to suffer badly, particularly if the incomer is not of agreeable manners, or if he does not produce the same kind of work as was formerly turned out. There is always the possibility of this kind of thing happening when a business has been mainly conducted by employees. We have here made no estimate as to the value of photographic businesses, large or small, but merely call attention to a few points that purchasers would do well to give attention to, as by so doing they will often avoid after-disappointment.

BACKED PLATES—HOW TO PREPARE THEM.

How few protographers, says the Amateur Photographer, seem to use their plates backed, and yet the advantages to be derived are manifest. A well-backed plate will minimize, if not absolutely obviate, all trouble from halation, that bete noir of the photographer. It will allow of subjects being successfully done, that to use a plate upon without backing is

simply to court certain failure. Doubtless the reason for this neglect lies in the supposed difficulty, or, more likely, the notion that it calls for a lot of time and trouble. Whereas, in fact, it is the simplest affair possible, and withal speedy, six whole plates being easily dusted, backed, and placed in the dark slides complete, well within as many minutes, and then, oh, the comfort to find, on development, each negative come up with every window sash clear and well defined, no blurring of the image, although it may be the sun was streaming through the while we made our exposure.

Having tried most kinds of backing mediums, for simplicity of working and effectiveness ordinary caramel and sienna is found to answer any requirement; it may be homemade, or such as can be bought in tins, in my own practice that known as Powell's caramel and sienna backing being employed. To use it, lay a clean piece of paper on the table in front of the ruby lamp, and when all is ready to commence, take a brush—and the most useful for this purpose will be found a camel-hair mop brush, about one inch broad—such as is used in water-color painting; one bound in tin may be bought for about 6d. or 9d. This will be found infinitely better than any hog's hair brush; it enables the soft backing solution to be rapidly brushed over the entire back of the plate. When this is done lay over it a piece of thin yellow paper, such as is sometimes used for wrapping the plates up in; the plate may then be laid in the dark slide, and the fingers ran lightly over the whole of the sheet of paper to press it into contact. The rest of the plates are then treated in like manner, and within six minutes from commencing the whole affair is completed, the reason of putting paper behind being to save the time and trouble of drying.

When about to develop take a wet sponge and go over the now dry

paper two or three times, then a table knife will quickly scrape off paper and main part of the backing, another wipe of the sponge will clear away the remainder, and our plate is ready for the developing dish.

For hand-camera work, of any kind, indeed, where harsh contrasts exist, and especially when one is working against the light, a well backed plate is a comfort; in making enlarged negatives it will prove beneficial. Indeed, every plate exposed—direct, enlarged, or for lantern slide—will be better for previous attention of this kind.

When using such a mixture as mentioned above, don't forget to get a camel-hair mop brush for the work, and then backing plates will prove almost as pleasant as eating ripe strawberries.

THE DEVELOPER IN OUR DARK-ROOM.

The developer at present provided in the dark-room for the use of our members, says the journal of the New York Society, was introduced under the name of "The Goodenough," partly to conceal the fact that it was an old form of pyro developer (presumably objectionable on that account to the fin-de-siècles) and partly because it is good enough to perform any reasonable service required of it.

The "Goodenough" is made up in two parts, each containing ten ounces of stock solution; and, as the quantity of each ingredient is divisible by ten without a remainder, the whole may be reduced to the simple basis of one ounce by leaving off the right hand cipher. Again, the normal working solution is one drachm of each, A and B, with water to make two ounces. As there are eight drachms to an ounce and the quantities of the principal ingredients are even multiples of eight, we see, by the simplest

mental arithmetic, that in every two ounces of working developer, there are

Pyro 6 grains,
Sulphite of soda 30 grains,
Carbonate of potash . . . 18 grains,

together with $\frac{3}{4}$ grain of citric acid and $\frac{3}{8}$ grain of bromide of ammonium; the former exercising a preserving influence—ancillary to the sulphite—and the latter being a restrainer. The proportions are thus—one part of pyro; five parts sulphite; and three parts carbonate of potash—equal to about seven parts of sal-soda crystals.

To make up "The Goodenough Developer," mix in order named,

A.

Sulphite of soda (crystals) 3 ounces,
Citric acid 1 drachm,
Bromide of ammonium $\frac{1}{2}$ drachm,
in about 8 ounces water (distilled), then add
Pyrogallic acid 1 ounce,
and make solution up to 10 ounces.

B.

Sulphite of soda (crystals) 2 ounces,
Carbonate of potash . . . 3 ounces,
in water to make up to 10 ounces.

For use: for normal developer, take 1 drachm of each (A and B) and water to make 2 ounces.

For soft effects, take 1 drachm of each and water to make 4 ounces.

In practice it is seldom necessary to use as strong a solution as that given as the normal strength. It might, however, be used successfully on many plates where the exposure has been accurately calculated and where there are no harsh contrasts—say on open views having little foliage, or nonactinic colors, in the foreground. Generally it is preferable to

go slower, and secure soft effects and gradation, by using four ounces of water to one drachm each of A and B.

For special subjects, including effects against the light, with luminous mists and atmosphere; for marine and bird's-eye views, where grey and violet tones predominate; where contrast is desirable and flatness disagreeable, it is better to make up two solutions, balanced against each other somewhat as follows:

I.

A 2 drachms.
 B $\frac{1}{2}$ drachm.
 Water 2 ounces.

II.

B 2 drachms.
 A $\frac{1}{2}$ drachm.
 Water 2 ounces.

Soak the plate in No. I about two minutes, which time the plate may be kept from the light, as, unless the exposure has been abnormally full, there is little probability of the image flashing out and becoming unmanageable. Do not, therefore, strain your eyes to see the image, but gently rock the tray, occasionally looking to see if the solution properly covers the plate. At the end of two minutes the image will probably only faintly show; now pour off solution No. I. and immerse the plate in No. II. This is the time to exercise your powers of observation and judgment. Frequently inspect the action of the solution; if the plate develops promptly and at moderate speed, finish in No. II. But if it comes up very rapidly, restore to No. I. solution for safety, and development may be concluded by alternate baths of No. I. and II. In cases of known extreme over-exposure a few drops of a ten per cent. bromide solution may be advantageously added to No. II. —not to No. I., as that would tend to make a hard negative. This alternate system of development with two

solutions is also recommended for all cases where there is uncertainty about the amount of exposure; for instance, the case of a batch of exposed plates, partly snap-shots and partly time exposures, where the record of the particulars has been lost. By this tentative method the control of the development is retained from beginning to end, and, while contrast may be secured, there is no danger of hardness if reasonable judgment is used.

Good development cannot be secured if the working solutions are too cold; sixty degrees F. is a good temperature and it is a good rule to keep the solutions between the limits of 60 and 70 degrees F. A small thermometer would be a wise addition to the stock in trade of every photographer and its use would reveal the cause of many puzzling failures in development and fixing. The fixing bath should receive more attention than it does. Plates do not fix quickly or completely in cold hypo baths and many a negative has yellowed in time because it was placed in a freshly mixed, and therefore very cold, hypo solution.

USEFUL FORMULÆ, ORIGINAL AND OTHERWISE.

Intensifying Solutions (Cramer).

Prepare a saturated solution of bichloride of mercury in water and pour of this a sufficient quantity gradually into a solution of $1\frac{1}{4}$ ounce, iodide of potassium, 6 ounces water, until the point is reached when the forming red precipitate will no longer dissolve by shaking, but be careful not to add more mercury than just enough to make the solution very slightly turbid. Now add 1 ounce of hyposulphite of soda. Dissolve and add water to make 20 ounces of solution. For use, this should be diluted with about three parts of water. If the plate has not been thoroughly

fixed, the intensifying solution will produce yellow stains. Be careful not to overdo the intensifying. Should it have gone too far, the negative can be reduced by placing it in the fixing bath for a short time.

Scolik's Method of Mercurial Intensification.

The fixed and well-washed negative is allowed to remain in the following mercuric chloride bath until the film is thoroughly whitened :

Bichloride of mercury... 1 part.
Potassium bromide.... 1 "
Water.....50 "

The bleaching being complete, the mercuric solution is rinsed off, and the negative is immersed in a mixture of equal parts of saturated solution of sodium sulphite and water; the darkening action will be seen to take place steadily and slowly, just as when ammonia is used. Wash away the excess of sulphite.

Reducing Solution (Cramer).

Dissolve 1 part red prussiate of potash in 15 parts of water. Wrap the bottle in yellow paper, to protect the solution from decomposition by light. To a solution of 1 ounce hyposulphite of soda in 15 ounces of water, add from $\frac{1}{2}$ to 1 ounce of the red prussiate solution immediately before use. The negative may be placed in this solution directly after fixing. A dry negative should first be soaked in water for a few minutes. Watch it carefully while in the solution, rocking the dish and avoiding strong light during the operation, and remove it to running water immediately when sufficiently reduced.

To Clean Negatives Stained by Silver.

Take a plug of cotton-wool and wet it well with a weak solution of cyanide of potassium, rub gently all over the negative, using a little more force on the stained parts. Wash well. Dry on blotting-paper. If necessary to re-varnish, flood the plate once or twice with alcohol. Let dry, and then varnish in the ordinary way.

BOOKS AND PUBLICATIONS.

Mr. Smalley's Literary Mission Abroad. George W. Smalley, the famous American editor-author, has been granted a two-months' holiday by his paper, the London Times, and has gone abroad on a special mission for **The Ladies' Home Journal**. He has engaged to prepare a short series of articles for that magazine, and is gathering the material for them in Europe. The work will necessitate his spending part of the summer in England and the remainder in Germany.

The X Rays, by ARTHUR THORNTON, M.A.; publishers, Percy Lund & Co., London. English price, 6d net. This interesting addition to the *Lund Popular Photographic Series* (being No. 10) is a well-written treatise on the subject of radiography, showing the mode of using the X rays and giving many indications of present theories about them. The book is well illustrated and is a valuable addition to X ray literature.

We cannot too strongly commend to our readers of an artistic turn that fin-de-siecle art journal, **The Studio**, published at 5 Henrietta St., London, Eng. Monthly, at one shilling. Beautifully printed, profusely illustrated and overflowing with original writings from authorities on all phases of art, each number serves as part of a yearly volume that is almost a liberal art education in itself.

In its addition of February 27, 1896, **The Youth's Companion** offered prizes for the eight best amateur photographs submitted by June 30th. In response to this offer 6,472 photographs were received, all of which were shown in this exhibition. All sections of this country are represented and there were many foreign contributors. We have to thank the publishers for a booklet just received

containing half tone reproductions of the eight prize pictures. This effort on the part of The Youth's Companion to further the practice of amateur photography is commendable.

NOTICE BOARD.

Messrs. Ross & Co. have issued two catalogues for 1896. Catalogue No. 1 contains full particulars of Ross' portrait and view lenses for amateur and professional photographers; Ross-Zeiss' anastigmats including the new convertible anastigmats; Ross-Goerz' double anastigmats; Ross' field and studio cameras and accessories; process cameras and reversing prisms and mirrors, etc.; special hand cameras; science, projection and enlarging lanterns; and several important new series of lenses, cameras, lanterns, etc., etc. Catalogue No. 2 contains illustrations and prices of Ross' microscopes, objectives and micro-apparatus; telescopes for sportsmen's, naval and military use; new series binocular glasses and stereo telescopes and operaglasses; mercurial and aneroid barometers and thermometers; sextants, compasses, pedometers, surveying and drawing instruments, spectacles and eyeglasses, etc.; including several novel and improved designs in microscopes, binocular glasses, barometers, eyeglasses, etc. Either or both of the above catalogues will be forwarded on application. Post free sixpence. In writing for catalogue please state which list is wanted and give the full postal address to which it has to be forwarded.

The Cramer Isochromatic plate is now the same price as the Crown, a reduction that will be duly appreciated by good workers who, fitting the plate to the subject, use many of these plates.

Hammer plates are working as smooth as silk, and seem to be particularly free from that hot weather annoyance, frilling. Hammer's little book, issued by this firm, is full of interesting and useful information.

Malmedy paper is making a splendid record for itself, and a reputation for Brown & Palmer, the makers. It is a brilliant paper and very easy to handle.

The approach of fall will remind our readers that to get the true color values of the lovely fall foliage a **Carbutt Orthochromatic plate** will be a necessity. Try them on your work this fall.

The Premo Camera of the Rochester Optical Co. has been a great "winner" for 1896. This camera is certainly as near perfection now as a camera may be, and we already begin to wonder what that is new this enterprising firm will or can add to the premo for 1897.

Stanley Plates have outlived all Canadian competition, and are now better and more popular than ever. Not the least of the reasons for the great demand for these plates is the popularity of Mr. C. F. Stanley, the genial manager of the Stanley factory who is an indefatigable worker in the interests of his plate.

A MODEL AMONG MODELS.

'Twas Addison who wrote:

"'Tis not in mortals to command success,
But we'll do more, Sempronius, we'll
deserve it."

And yet some people and some things, considering the ease with which they achieve it, appear to come perilously near to the commanding of success. Among the institutions at whose beck success joyfully approaches is

Toronto's great Exhibition, that commences on Monday, August 31st, and lasts until Saturday, September 12th. For eighteen years it has annually grown larger and better, until now one almost wonders in what department it can be improved. In this year of grace, 1896, it will present many superlative attractions. It will present that model and modern marvel, Edison's Eidoloscope. It will present the greatest array of horses, cattle, sheep, pigs and poultry that have ever been gathered together within one enclosure. It will present many beautiful pictures, including F.M. Bell-Smith's portrayal of events attending the death and funeral of Sir John Thompson, for which the Queen herself honored him with a sitting. It will present an electrical theatre. It will present the most wonderful elephants the world has ever known. It will present a collection of cheese and butter that all the nations of the earth together could not surpass. It will present a hundred novel attractions, such as have never before been gathered together in one place. It will present the resources and products of the greatest country under the sun—our magnificent Dominion. It will show a collection of minerals, cereals, vegetables and fruit, all gathered in Canada, that no other country could equal, let alone excel. It will nightly present a startlingly brilliant display of fireworks and a series of stupendous spectacles. Above all, it will afford amusement, instruction and information for hundreds of thousands of hard-working people, for whom Toronto Fair provides more entertainment than can be got in any other city for ten times the expenditure it involves. And this year the first week will be as complete as the second, and a single fare for the round trip will prevail from every point in Canada and the State of Michigan the whole time, with several cheap excursions.

OF INTEREST TO ALL.

The Photographic Association of Michigan offers the following prizes, which will interest artists outside of Michigan :

For the most artistic novelty in photography, one gold medal.
To photographers outside of Michigan exhibiting one photograph, 16 in. or over, 1st, gold medal; 2nd, silver medal.

For the most artistic design for a diploma, \$25.00 in cash.

The P. A. of M. holds its second annual meeting in February, 1897, and we hope to make it the banner State convention.

J. E. WATSON, Sec.,
148 Woodward Ave., Detroit.

CLIPPINGS.

An English photographer who intends devoting particular attention to theatrical work has put in a system of lighting which will give the posing actors a foot-light effect, giving the appearance of the photograph having been taken at the theatre.

Fixing Solution for Warm Weather (Hammer).

No. 1.

Saturated solution of hyposulphite of sodium in water.

No. 2.

Water	12 oz.
Sulphite of sodium.....	4 oz.
Commercial sulphuric acid	¼ oz.

No. 3.

Hot water	6 oz.
Chrome alum, powdered.	1 oz.

When all is dissolved, pour solution No. 2 into one gallon (4100 c.cm.) of solution No. 1, shake well and add solution No. 3. When settled clear, decant for use, or filter.

A Reliable Plate-Backing.—

Caramel.....	1 oz.
Strong gum arabic solution	1 oz.
Burnt sienna (in powder) ..	2 oz.
Methylated alcohol	2 oz.

Mix thoroughly and apply to the back of the plate with a linen dabber; a very thin coating will be sufficient for the purpose, and it should dry within half an hour. It will prevent halation, and can be easily removed before development by rinsing under a tap and wiping with a sponge. Carmel (burnt sugar) can be bought from the druggists; it is a black, brittle substance used for coloring medicine and gravies.

Here is a dodge discovered by an amateur friend which will, I think, prove of inestimable value to all platinotype workers. We all know the difficulty in keeping platinotype paper in printable condition, and how quickly it deteriorates when exposed to the action of the air. If you are a platinotype printer, I shall be quite safe in saying you have thrown many a dozen pieces of paper away as "spoilt," through age or exposure to damp. Well, all that "spoilt" paper might have been used, and would have produced results equal to "the best," had it been kept in a fairly hot oven for an hour or two before being put in the printing frame! How wonderfully simple some of these dodges are when one only knows them.

Backing Plates.—Any subject is rendered better on a backed than on an unbacked plate. Perhaps many do not back their plates, because they fancy the operation is a troublesome and messy one. Let them try the following: To make the backing mixture, dissolve one ounce of caramel in two ounces of water, add one ounce of finely ground burnt sienna and then two ounces of methylated spirit.

Shake before using. Apply a thin film to the back of the plate by dabbing with a sponge dipped in the mixture. The backing will dry in a minute or two, and the crispness of negatives obtained on such plates will come as a pleasant surprise to those who have never made the experiment. Never expose an unbacked plate again.—Photo. News.

Pyro and Soda.

Sulphite of soda....	360 grains.
Carbonate of soda ..	360 "
Water	20 ounces.

For developer take :

Stock solution	1 ounce.
Water	1 "
Pyro (dry).....	2 grains.

If desired, the greatest density may be readily got by pouring off the above when details are out, and finishing with :

Stock solution.....	2 ounces.
Pyro.....	4 grains.

One of the chief advantages of the above developer is that it can be used equally well for these or for "ordinary" plates. By using the pyro dry one has always a fresh and powerful developer at a moment's notice. This method also allows of ready modification of developer, as thus: For portrait work, interiors, and all subjects where softness is desired, or where harsh contrasts have to be dealt with, the quantity of pyro may be reduced to one grain per ounce of stock solution, and water added ad lib.

For ordinary subjects, use as at first directed.

For copying line engravings, more sodium sulphite may be used to keep the film perfectly clear. The exact amount does not matter, but three times the quantity already mentioned should be abundance. Potassium bromide say one grain to the ounce of developer, may be used with advantage for this class of work.