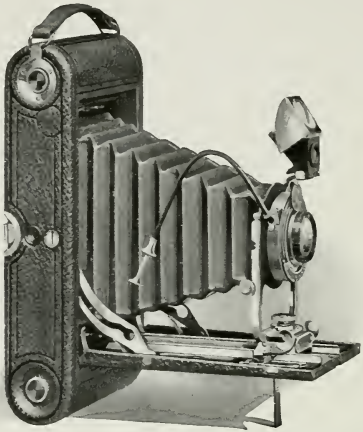
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

NOVEMBER 1919

CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.



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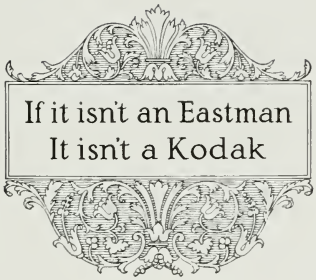

If it isn't an Eastman
It isn't a Kodak

ON THE FRENCH COAST NEAR MENTONE
Made with a 3A Folding Kodak; Stop, 32, 1-10 sec. exp.

KODAKERY
A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. VII NOVEMBER, 1919 NO. 1

STE. MAXIME
Made with a 3A Kodak; K2 Filter; Stop, 16; 1-5 sec. exp.

IN THE ROMANTIC FRENCH RIVIERA

BY C. HAZEN TRAYVOR

WHEN the Canadian soldier was on furlough and turned from the stricken regions of France to the soft-climated, lovely-lined vistas of the South, it was one of his romantic and picturesque experiences to be permitted to cross the bridge that links France and Italy. It was his privilege to go for a mile and a half into Italy, and an interesting mile and a half it is.

The French Riviera lured many Canadian soldiers who found opportunity to answer such lures. And well it might, for the charm of

MONTE CARLO SEEN FROM MONACO
Made with a 3A Kodak; K1 Filter; Stop, 32; 1-10 sec. exp.

this region has long held sway over the imagination of travelers, of poets and painters, and lovers of romance. Robert Louis Stevenson and many another poet has written of the glens and gorges, the quaint roads and villages, the semi-tropical stretches of country, the fasci-

IN THE RIVIERA COUNTRY
Made with a 3A Kodak; f.16; 1-25 sec. exp.

THE BRIDGE UNITING FRANCE AND ITALY

Made with a 3.1 Folding Kodak; Stop, 32; 1 sec. exp.

THE COAST AT MENTONE
Made with a 3A Kodak; Stop, 32; 1-5 sec. exp.

ST. TROPEZ
Made with a 3A Kodak; f.32; 1-5 sec. exp.

nating curves of Mediterranean water front, the historical splendors of Nice, and Mentone and Marseilles.

Sometimes it seems as if anyone could be a pretty good poet down there. You fall into Monte Cristo moods. The world, indeed, begins to seem a splendid adventure, an easy adventure, without snow and ice, the smoothness very handsome and the roughness all very much like a picture to be liked.

Imagine then what it means to a person with a Kodak! A constant joy, you may be sure. Take the one matter of trees. Where else are there so many varieties of delightful trees? To be sure I have felt the same way in British Columbia and elsewhere in my own country, but with these photographs before me let me be enthusiastic about the Riviera just now.

ENTERING
THE HARBOR
OF STE. MAXIME

Made with a Premo; Stop, 22; 1-25 sec. exp.

The harbors and inlets, and old churches; the shops, the houses, the boats,—yes, and the people,—all say "Picture!" and say it as if with a singularly pleasant voice. The rocky shores invite surf excitements, and pine and palm frame vistas of extraordinary variety and beauty—that is, they frame them when the photographer takes care to have them do it. After all, picture-making is never difficult when there are hills of the right sort for a background. To have sea and mountains, mellow old towns, rich vegetation, and sunshine into the bargain, is to be outfitted for Kodak excursions of the most fruitful kind.

Surely it is good news to the

CAPE MARTIN

Made with a 3A Kodak; Stop 32, 1-2 sec. exp.

THE WATER FRONT, STE. MAXIME

Made with a 3A Kodak; K3 Filter; Stop, 16; 1-2 sec. exp.

OLD MENTONE
Made with a 3A Kodak; K2 Filter; Stop, 22; 1-2 sec. exp.

world that all the beauty in it will soon be free to see and to picture, without the restrictions or reservations which have for so long and under such disturbing circumstances been setting up barriers. Only a free world can make the Kodak entirely content.

COAST NEAR MONTE CARLO
Made with a 3A Kodak; Stop, 22; 1-25 sec. exp.

THE GOSHAWK—*Made with a Premo*

A STRANGER FROM THE NORTH

BY HOWARD TAYLOR MIDDLETON

With Illustration from Premo Picture by the Author

GAZING out across the landscape from our veranda in the early morning, we noticed a big grey hawk. Perched upon a high mossy stump, and silhouetted against the glory of the rising sun, he presented a very beautiful picture.

"He doesn't look like any hawk I ever saw before," quoth Marie, gazing at him through her binoculars.

"I wonder if, by any chance, his breast plumage resembles that of a guinea hen," I asked, making a long guess.

Marie's glasses remained levelled for several moments; then came the news, and good news it was: "You're right, partner mine; he's a goshawk!"

This most destructive of all hawks is very rare in Southern Canada, his home being in the northland; therefore, his portrait is a thing greatly to be desired.

"Kill-dee! Kill-dee! Kill-dee!" sounded above our heads and a flock of killdeer plover scudded by. The mossy stump was vacant now, while above the plovers hung a cruel shape that pitched and darted in unison with the terrified birds. As we gazed spellbound at the unique spectacle, a grey streak dashed into the flock and out again, and now there was something in the big hawk's talons—something that fluttered frantically to escape. The tiger of the air had made his kill. Screaming his defiance, he circled back to the stump where he came to rest and began tearing ferociously at his prey.

"He seems to like that stump rather well!" I exclaimed excitedly, scenting a wonderful picture to come. "Furthermore, I have a hunch he'll use it as a watch tower for a while. Do you think we can photograph him there?"

"We can try, partner mine," came the enthusiastic answer.

We waited until the villain had finished his breakfast and winged his way down stream, then we started to erect our studio. First, we drove a stake into the ground and clamped our Premo long focus camera to it by means of the Eastman Universal Clamp. Then the camera was focused carefully upon the stump and shutter set at $\frac{1}{25}$ second. We did not expect our prospective subject back until late afternoon, so we made due allowance for light conditions at that time. Last of all, the outfit was camouflaged with brush, and a thread run from shutter trip to the veranda rail one hundred yards away.

Marie, in the couch hammock, was deep in Curwood, her favorite author, while I napped in a steamer chair. A distant factory whistle sounding its five o'clock closing call awoke me, and I glanced casually in the direction of the stump—Sir Goshawk had returned. Stepping quietly to the veranda rail, I pulled steadily upon the thread.

"We've got him, honey!" I cried exultantly, and we had.

THE LOCK
Made with a Kodak

FIG. 1

GETTING THE PICTURE STRAIGHT

IN the days of glass plates and bulky cameras the view man traveled about the country photographing buildings, and it is chiefly due to him that so many of us possess a picture of our home as we knew it in the days of our childhood.

The successful view man was a careful worker. Picture-making was his business and he had to get his pictures of buildings straight, with the vertical lines in the subject vertical in the print, because no man would buy a picture that showed his house or his barn leaning to one side.

The way he got his pictures of buildings straight was by leveling his camera, and he did this by changing the position of the tripod legs until the image on the ground glass showed that all the vertical lines of the building were parallel with the sides of the ground glass.

This is the method that is still employed by photographers who use the view camera for photographing architectural subjects, but a much quicker and equally satisfactory method can be employed by the photographer who uses a modern hand camera. All that is necessary for getting the building lines as they should be, in the negative, is to make sure that all the vertical lines of the building are parallel with the side

FIG. 2

margins of the finder. This is a very easy thing to do when the camera is held in the hands and it is equally easy when the camera is placed on a tripod that is fitted with a Universal Tripod Head, with which the camera can be leveled, no matter how the tripod stands.

It is probably because picture-making has been made so simple and the necessary operations can be so easily performed that we are sometimes careless and do not get our pictures straight. When this happens it is often possible to straighten them in the trimming of the print. For instance, should the vertical lines of a building be parallel with each other in the picture, but not be parallel with the side margins of the print, the building will be represented as leaning to one side, as is shown in Fig. 1. But this can be corrected, so that the building will be made to stand straight in the picture, by trimming the print so that the vertical building lines will be parallel with the side margins of the picture. (Fig. 2). It is always best, however, to get the lines as they should be in the negative, by holding the camera level, because then we will not need to trim so much from the print, and because when we do not hold the camera level it is usually merely good luck to get the vertical building lines parallel with each other when they

FIG. 3

are not parallel with the sides of the finder.

When the lines are not parallel with each other (Fig. 3), it will be impossible to trim the print so that the picture will really be straight. This is shown in Fig. 4. But by trimming the print so that the most prominent upright lines which are nearest the centre of the picture are truly vertical, the most pleasing effect can usually be obtained.

While, when photographing architectural subjects, we must always be guided by the vertical

FIG. 4

FIG. 5

lines, which the builders make perpendicular and parallel with each other, yet in photographing marine views we can seldom find vertical lines that are perpendicular. The masts of a ship are not reliable guides because they seldom stand exactly vertical, whether the ship is under way or riding at anchor. Though we may not find perpendicular lines in marine views we can often find a horizontal line along the horizon, and a horizon line of sky and water is always an infallible guide. If the camera is held so that this line will be parallel with the top and bottom margins of the finder, the picture will be straight, no matter how much the masts of a ship may slope from the vertical. (Fig. 5).

In many of the other kinds of subjects we photograph there are no lines that must be rendered truly vertical or truly horizontal in order to make the picture look straight. In such cases, even though the camera is not held perfectly level, there will rarely be anything in the picture that suggests it is not straight, and, it is always safe to consider that if the picture looks straight it is straight.

But pictures which contain relatively large images of buildings, and pictures in which the upright lines of any building are near the margins of the print, will not look straight unless they actually are straight; nor will pictures of marine views which suggest that ships sometimes sail up hill (Fig. 6) convince the observer that such a thing actually occurs.

In every case the finder will tell us how the camera should be held. The side margins tell the story for buildings and landscapes and the top and bottom margins tell the tale for marines.

FIG. 6

GLIMPSES O

FROM A VEST

ENGLAND

CKET KODAK

FIG. 1

Far distant landscape objects are often invisible in pictures made without a Filter

THE FUNDAMENTALS OF PHOTOGRAPHY

BY DR. C. E. K. MEES

CHAPTER XVII—LIGHT FILTERS

IN Chapter XVI we saw that even orthochromatic film, which is sensitive to green and yellow, is still so sensitive to blue and violet that pictures are taken on it almost entirely by blue-violet light, and a blue sky sometimes appears in the print as bright as the white

FIG. 2

Photographed with a K2 Filter in front of the lens. Compare the skyline in this picture with the skyline in picture above

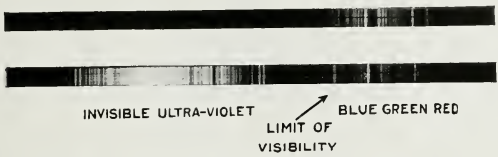


FIG. 3

Photograph of the Spectrum, through two yellow Filters, which are of almost the same color to the eye, showing (A) that the K Filter cuts out the ultra violet, while (B) the other Filter does not

clouds floating in it. In order to get a good photograph in which the white clouds stand out from the blue sky, therefore, we must use a light filter which absorbs the excess of blue light and darkens the sky in the photograph in comparison with the clouds. The light filters for this purpose are made by cementing yellow-dyed gelatine between optically prepared glass.

When light filters were first introduced it was thought that any yellow glass would be satisfactory, and light filters were made of brownish-yellow glass, which only increased the exposure and are of no advantage at all. The reason for this is that they transmit the ultra-violet light, which lies out in the spectrum beyond the violet. This ultra-violet light is quite invisible, but produces a strong impression upon the photographic plate, and in order to get satisfactory action from a filter it is very important to remove the ultra-violet light as completely as possible. The ultra-violet light is far more easily scattered by traces of mist in the atmosphere than visible light, and since it is this mist which so often makes objects in the distance invisible in photographs that are taken without a filter (Fig. 1) it is necessary to use a filter that will cut out this ultra-violet light in order to show the distance well. (Fig. 2).

Some yellow dyes, while removing violet light quite satisfactorily, transmit a great deal of the ultra-violet light, and only a few dyes cut out the invisible ultra-violet satisfactorily. One of the best of these dyes is the dye used in the Wratten K filters and the Kodak Color Filters. In Fig. 3 are shown two photographs of the spectrum—the one taken through a filter made with a dye of a type often used for filters, but not cutting out the ultra-violet, and the other the same spectrum taken through a K filter.

The K filters are made with a dye produced in Germany, and during the war the requirements of the aerial photographers in the army made it necessary to prepare a new dye which would cut the mist even more sharply than the K filters. This presented a problem which was solved in the Kodak Research Laboratory by the discovery of an entirely new dye which was named "Eastman Yellow," with which special filters were prepared for aerial photography.

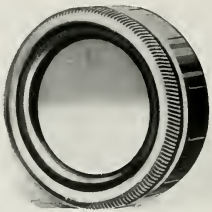


FIG. 4—*Kodak Sky Filter*

Since a yellow light filter removes the ultra-violet and much of the blue-violet light, it necessarily increases the exposure, because if we remove those rays to which the film is most sensitive, we must compensate for it by exposing the film for a longer time to the action of the remaining rays, and the amount of this increased exposure will be dependent both on the proportion of the violet and the blue rays which are removed by the filter and also on the sensitiveness of the film for the remaining rays (green, orange and red) which are not removed by the filter.

The number of times by which the exposure must be increased for a given filter with a given film is called the "multiplying factor" of the filter, and since the factor depends both upon the depth of the filter and upon the color sensitiveness of the film, it is meaningless to refer to filters as "three times" or "six times" filters without specifying with what material they are to be used.

It is always desirable that we

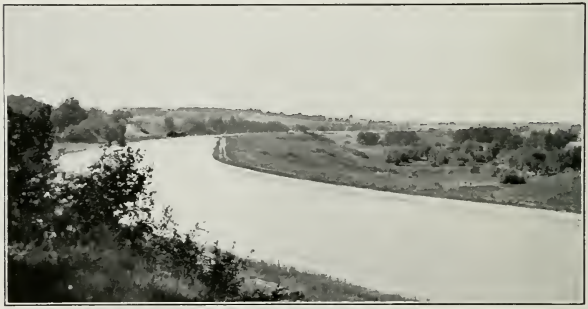


FIG. 5-A
Made without a Filter

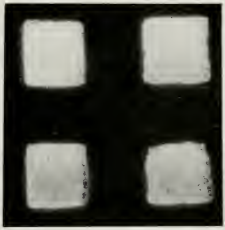
should be able to give as short an exposure as possible; what is required in a filter is that it should produce the greatest possible effect with the least possible increase of exposure, so that a filter will be considered most efficient when it produces the maximum result with the minimum multiplying factor. To a certain extent the multiplying factor depends upon the result that is wanted; thus in order to get exactly the same proportional exposure when using a Kodak Color Filter with Eastman N. C. Film, as that obtained without it the necessary increase of exposure is ten times, but in fact the Color Filter is generally used for distant landscapes where haze is to be cut out, and for clouds against the sky, and under such conditions an increase of three times the normal exposure that would be correct for an ordinary landscape will give the most satisfactory results.

For many purposes, however, the Kodak Color Filter is too strong; the exposure when using it is so prolonged that it is not practical to use the Kodak without a tripod, and to meet these difficulties the Kodak Sky Filter has been introduced. (Fig. 4).

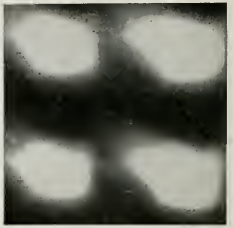
In this filter only half the gelatine, which is cemented between the glasses, is stained with the yellow dye, the other half being clear, and the filter is placed on the lens with its stained half on top so that the light from the sky will pass through the stained half and the light from the landscape through the clear half of the filter. In this way the yellow dye reduces the density of the sky in the negative without greatly affecting the exposure of the foreground and enables us to get a rendering of clouds in a blue sky by cutting out a part of the very strong light that comes from the sky, while the exposure necessary is increased only to a small extent.

The sky filter is not suitable for the cutting of haze since its colored

FIG. 5-B
Made with a Wratten G Filter in front of the lens



A—Original Definition



B—Definition after screwing up tightly in cell

FIG. 6

Very greatly magnified photographs of a finely reticulated grating

half does not cover the landscape, which is the part of the field, where the haze occurs. Its use is confined to that suggested by its name.

When it is desired to make blue photograph somewhat darker than can be done with the Kodak Color Filter the Wratten K2 should be used, and for recording still more contrast, which is sometimes wanted in pictures of extremely distant landscapes that are under haze, the Wratten G filter is very valuable. Thus, distant mountains and all other distant landscape scenes (Figs. 5A and 5B) may be photographed through a strong yellow filter by giving the necessary increase of exposure, with a Kodak mounted on a tripod. The K2 will require an increase or exposure of about twenty times and the G of one hundred times on the Kodak film.

In order that filters may not spoil the definition it is important that the glasses between which they are cemented should be of good optical quality. This is very carefully controlled in the case of the Kodak and Wratten filters, which are all measured by an instrument specially built for the detection of optical errors introduced by filters. The filters have to be mounted in the cells so that they cannot be strained by pressure being put upon them, since if they are squeezed the balsam with which they are cemented together will be displaced and the definition will be spoiled. (Fig. 6).

Filters should be treated with care equal to that accorded to lenses. When not in use they should be kept in their cases and on no account allowed to get damp or dirty. With reasonable care in handling they should never become so dirty as to require other cleaning than can be given by breathing upon them and polishing with a clean, soft piece of linen or cotton cloth. A filter should never be allowed to become wet under any circumstances, because if water comes into contact with the gelatine at the edges of the filters it

will cause the gelatine to swell and so separate the glasses, causing air to run between it and the glass.

The dyes used for filters are quite stable to light, and no fear of fading need be felt. The filters, however, should be kept in their cases when not in use in order to protect them.

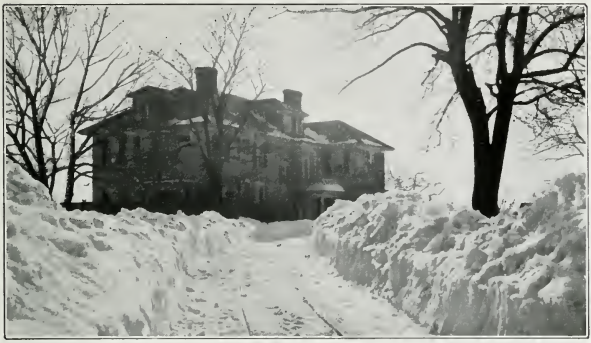


FIG. 1

Exposure 1-50 sec.; stop 8 (f.11); 3 p. m.

OUTDOOR EXPOSURES IN SNOW TIME

SNOW reflects so much light that it would seem as though shorter exposures should be given for outdoor subjects in winter, when there is snow on the ground, than for summer landscapes.

Whether the exposure should be shorter or not depends, not on the presence of snow, but on the nature of the subject and the amount of light the subject reflects.

The light that is reflected from the sides of trees, buildings and other vertical landscape objects is by no means as brilliant as the light that is reflected from the surface of clean snow, and in making a photograph we must time the exposures for the lights and shadows that are on the particular object we wish to picture, instead of for the lights and shadows that surround it, for unless we do this, the object of interest will be rendered too dark, because of underexposure of the negative, if the subject is darker in tone than its surroundings.

Direct sunlight is so much less brilliant in winter than in summer that the minimum exposure that will record shadow detail in outdoor subjects must be longer in winter, provided there is no snow on the ground, than during the

FIG. 2
An Ordinary Snapshot with a Fixed Focus Premo

summer months, and when the winter landscape is covered with snow the light that an outdoor subject receives directly from the sky and by reflection from the snow is not enough stronger than the light it would receive in summer to make it worth while trying to calculate

FIG. 3
Exposure, 1-50 sec.; stop 16; time, noon

how much, if any, shorter an exposure it is safe to give.

A good rule for outdoor exposures on a snow-covered landscape, when the chief object of interest is neither snow nor ice is, to give the same exposure we would give for the same subject in summer, and, in case the chief object of interest is snow or ice, to shorten the exposure by one-half.

Fig. 1 of our illustrations was photographed at 3 P. M. when the sun was shining. The building is light gray and white, but it is rendered so much too dark that the picture fails to convey a correct idea of the tone values of the subject. This faulty rendering is solely due to under-exposure of the negative, which received only ¼ the exposure that would have been needed in summer.

Much better tone values are shown in Fig. 2, which was also photographed in bright sunshine, with the same snapshot exposure that would be given for the building in summer.

Fig. 3 was photographed at noon for the purpose of recording the shadows on the snow. Since the snow was the object of interest the exposure was timed for the light tones only. Practically the only thing of interest in this picture is the snowdrift with its shadows, and for such a subject one-half the exposure that would be given for a summer landscape is ample.

We do not claim the correct rendering of the tone values of snow scenes cannot be obtained with shorter exposures than we have recommended, but we do claim that it is unwise to give shorter exposures than are necessary and thus run the risk of getting under-exposed negatives.

Great as is the latitude of Eastman film, it is well to remember that the latitude of all films and all plates can only take care of over-exposure, because under-exposure means that the light has not acted long enough to make a record, and it is evident that where the light has made no record no image can be developed.

By giving the same exposures for the same outdoor subjects in winter as in summer, we will be surer of obtaining good results than if we try to give the shortest exposures that will record what we wish to picture.

COLORING PRINTS

In the October KODAKERY, we advised the use of the Kodak Color Filter, because of the much superior rendering of woodland scenes which was possible. When printed, subjects like these lend themselves exceptionally well to coloring, for the greens, browns and yellows which predominate will be shown in their correct luminosity or brightness, so that provided we choose suitable colors, a harmonious result is quite easily secured.

The explicit directions which accompany the Velox Water Color Stamps make it all very simple, and some strikingly fine results can be obtained.

MONTAUBAN, FRANCE
A PICTURESQUE CORNER OF THE PYRENEES
Made with a 3A Kodak, K2 Filter; f.22; 1-2 sec. exp.

FOR MAKING BETTER PICTURES

"I AM *enclosing a number of negatives and prints which I would like to have you look over and criticise. You have done this for me several times and your comments have been of great assistance to me in my camera work.*"

"I want to thank you exceedingly for your courtesy in this matter and for the trouble you have undoubtedly gone to, which, I assure you, is deeply appreciated."

"Your kind favor, along with a sheet of good sound instructions on exposure, to hand, and I wish to express my appreciation of your thoughtfulness in the matter."

The above are extracts from three of the many letters we have received from readers who availed themselves of our offer to assist all amateur photographers in solving such problems as may arise in their photographic work.

Should you encounter any photographic problems which you cannot readily solve send them to us, we will take pleasure in assisting you.

If you have any difficulty in making good negatives and prints send us both the negatives and the prints and we will tell you where the trouble lies.

We need the negatives as well as the prints, since it is only by examining the negative from which a print was made that we can tell if the right or wrong grade of paper was used, and, the only way to determine whether the film was correctly exposed and correctly developed is, of course, by examining the negative.

Give us all the data pertaining to negatives and prints that you possess, such, for instance, as the month, the time of day, the light conditions when the films were exposed, the stop and shutter speed used and whether the negatives were developed in the tray or in the tank.

We would also like to know the name and grade of paper on which the prints were made.

All negatives and prints will be promptly returned, together with our comments and suggestions, which are offered free.

Address all communications,

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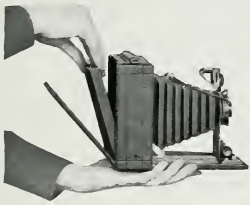
QUALITY and convenience—plus the greatest simplicity and rapidity in daylight loading and film changing, are the exceptional advantages of the Premo Film Pack.



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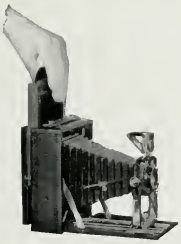
JUST insert the Pack in a Premo Film Pack camera, pull out a paper tab—and you are ready. To change film after exposure, pull out the next numbered paper tab. When the twelfth tab is drawn the Pack is sealed and may be removed in daylight.



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IF you have a plate camera convert it into a film camera with the Premo Film Pack Adapter. The adapter is used in the camera just like a plate holder, but it carries twelve exposures with one loading instead of only two.

Ask your Kodak dealer for a free copy of the Premo Catalogue

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See that your name is on the list of patriots.

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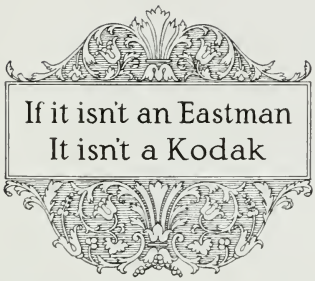
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

DECEMBER 1919

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.


If it isn't an Eastman
It isn't a Kodak

A VILLAGE LAUNDRESS IN THE FRENCH PYRENEES

Made with a 3A Kodak; 1-25 sec. exposure; f. 22

KODAKERY
A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. VII DECEMBER, 1919 NO. 2

LOW TIDE AT LYNMOUTH
Made with a 3A Kodak; stop, 8; 1-100 sec. exposure.

GLIMPSES OF ENGLAND

BY ALBERT CRANE WALLACE

With Illustrations by Benjamin P. Merrick

EVERYONE has had the experience of returning from a journey to find that certain glimpses had fastened themselves on the memory quite without regard to their importance. In other words, impressions do not go by rule, and they cannot be foretold.

We go through a mountainous region, for example, and we find, long afterward, perhaps, that not the highest peak, but some little roadside hut or garden has made the most lasting or the most agreeable impression.

This occurred to me as I studied

IN THE LAKE DISTRICT
Made with a 3A Kodak; stop, 16; 1-100 sec. exposure; 12 M.

these interesting fragments of pictorial England, for these photographs had quite the effect of my memory with regard to significant things. It isn't always the guidebook spectacles that most impress us, and it isn't always these guidebook spectacles that we most enjoy among our Kodak souvenirs.

Perhaps there is a feeling with regard to odd corners—even if they are celebrated odd corners, or nearby to celebrated places—that we have discovered, if not something new, at least a different, a personal angle.

Take the picture at Lynmouth. Lynmouth is on the Bristol Channel in Devonshire—a small fishing village and watering place. If you have read "Lorna Doone" you will be interested to know that this is Lorna Doone country, a lovely region with natural beauty and romantic history blended in its suggestions. Mr. Merrick's picture is certainly an admirable choice. He remarks of the situation that "on a clear day one can see the coast of Wales across the Bristol Channel, at the point where this picture was taken."

St. Martin's Church, just outside of Canterbury, marks the site and embodies some of the remains of the church in which St. Augustine carried on his work after coming to England in 597. It is the tradition that in the original church King Ethelbert, Sixth Saxon King of Kent, was baptized by St. Augustine himself.

The ruined arches are the remains of monastic buildings standing close by, to the northeast, of Canterbury Cathedral. The Cathedral was immediately back of the camera. You may be sure that the fact of my boyhood visit

ST. MARTIN'S CHURCHYARD, CANTERBURY

Made with a 3A Kodak; stop, 16; 1-100 sec. exposure

to this spot gives a special interest to the picture.

The lake district cottage is in the little village of Rydal, on the road from Ambleside to Grasmere. (When I "did" the lake district on foot there were no Kodaks, and "instantaneous" pictures had yet to happen.) Mr. Merrick says: "The cottage walls are solid stone, whitewashed, the roof gray native stone, coarser than slate, and, usually, nearly an inch in thickness. The bushes against the wall are roses, with blooms running up to the eaves. The chimneys, their supports on stone brackets, and also the windows, deserve attention. A little further up the road beyond this cottage stands the house where William Wordsworth spent many of the later years of his life."

Thus we notice with regard to all such pictures how important a part is played by *association*—by the people, the times, the conditions of which they make us think. Pictures that give us simply beauty have their place. But we never cease to be grateful for the vivid reminders either of past glories or drama, or of our own experiences and associations.

RUINS OF MONASTERY NEAR CANTERBURY
Made with a 3A Kodak; stop, 16; 1-100 sec. exposure

These considerations too give a strong endorsement of the Autographic Kodak, for *when* we took the picture often becomes of very great interest to us. In fact that *when* note cannot very well be too greatly emphasized. And then to know at the same time just *where* the picture was taken (memory often being fickle in such matters, even with the image before us) is of an importance that all of us have learned. Indeed, I find my own collection of pictures sharply divided between the B. A. period and A. A.—Before Autographic and After Autographic—when it comes to getting down to facts!

MOVEMENT OF NEARBY OBJECT—OTHER PARTS OF PICTURE SHARP

SHARP AND UNSHARP PICTURES

PICTURES are composed of lines. The lines that make the pictorial record in a photograph are drawn by the camera lens. Instead of drawing each line separately the lens draws all of them at the same time, and it does this by transmitting the rays of light that are reflected from objects, to the film, on which the images are recorded.

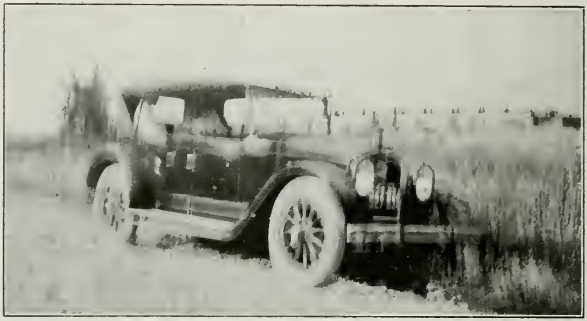
It is customary to say that a picture is sharp when the lines of which it is composed have sharply defined edges.

With the camera we can make pictures in which all the lines are sharp, some sharp and others not, or none of them sharp; or, in other words, we can make pictures that are wholly sharp, partly sharp and partly blurred, or wholly blurred.

The causes that produce lack of sharpness in the negatives from which photographs are printed are, incorrect focusing, movement of camera, and movement of a part of the subject.

In most of the subjects we photograph there are objects which are at different distances from the lens. Should too large a stop be used when the exposure is made with the lens focused on a nearby object, the images of this, and of all other objects that are at the same distance from the lens, will be sharp in the picture, but the images of the far distant objects will be blurred, because the foreground objects were in focus while the distant ones were out of focus.

On the other hand, should the lens be focused on far distant objects and the exposure made with too large a stop, the distance would be sharply rendered, but the foreground would be blurred, because the distance was in focus while the foreground was not.



WHOLE PICTURE BLURRED BY MOVING CAMERA DURING EXPOSURE

The minimum distance from the film that the lens on a focusing camera can be placed in order to sharply focus any object is represented by the 100-foot mark on the focusing scale. If the focusing indicator is set at any point *nearer* to the film than this 100-foot mark every part of the picture will be blurred.

If the camera is moved while the exposure is being made the whole picture will likewise be blurred.

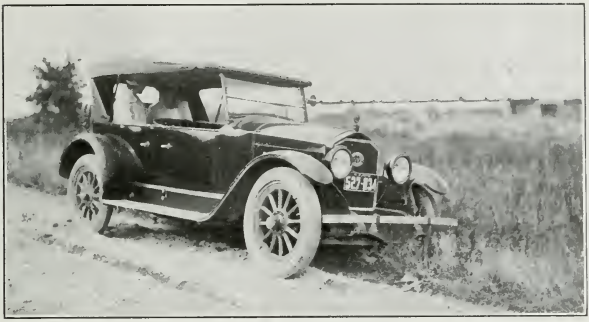
The movement of any object that is within the field of view of the lens at the moment of exposure will result in a blurred image of the moving object, unless the shutter speed is fast enough to arrest the movement of the image on the film.

From what has been stated it is apparent that "fuzzytypes" can be made, both by getting everything out of focus and by moving the camera during the period of exposure, and that the user of a focusing hand camera that is fitted with a large aperture lens (*f*.8 or larger), can emphasize the principal object of interest in a picture by focusing so this object will be sharply rendered, while other objects which are nearer or farther away are out of focus.

When it is desired to have practically everything within the picture sharp, the focusing indicator must be set at a point on the focusing scale which represents the distance to a spot that is intermediate between the nearest and farthest objects, and the exposure made with a small stop in the lens.

When the nearest object is less than 50 feet from the lens the focusing indicator must be set at some point between the 6-foot and the 100-foot mark, but when the nearest object is more than 50 feet away, the focus must be set on the 100-foot mark.

Stop 16 is usually small enough for making wholly sharp pictures,

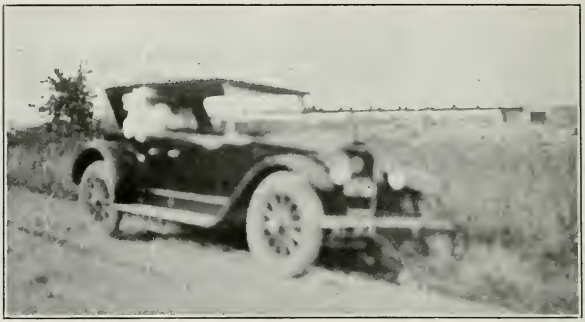


FOREGROUND OBJECT IN FOCUS—DISTANCE OUT OF FOCUS

with focusing hand cameras, when the nearest object is not closer than 25 feet, but if it is closer, and the sharpest obtainable picture is desired, the smallest stop must be used.

The instructions we have given for focusing only apply to focusing hand cameras. With fixed focus cameras, such as the Vest Pocket Kodak, and the box type of Brownies and Premos, which cannot do the wide range of work for which the focusing Kodaks, Premos and Brownies are designed, the lens is focused at the factory, on an intermediate distance, and the stop on these cameras, that is

DISTANT OBJECTS IN FOCUS—NEARBY OBJECT OUT OF FOCUS

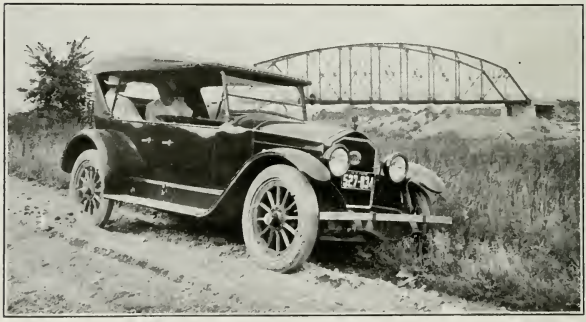


EVERY PART OF PICTURE OUT OF FOCUS

ordinarily used for snapshot work, is small enough to sharply focus everything that is within the picture area, unless the nearest object is very close to the camera.

If the nearest object is closer to the camera than the distances given in the following table, beyond which everything is in focus even when a large stop is used with the cameras mentioned, then one of the smaller stops with which these cameras are provided should be used.

Vest Pocket Kodak	9 ft.
No. 2 Brownie	13½ ft.
No. 2A and No. 3 Brownie .	15 ft.
No. 1 Premo Jr.	13½ ft.
No. 1A and No. 3 Premo, Jr.	15 ft.



EVERY PART OF PICTURE IN FOCUS

IMPROVING THE PRINT BY MASKING THE MARGINS

The best point of view from which to make a picture is the spot from which the subject looks most pleasing. This spot is sometimes so far from the subject that the picture will include more than is desired of the area that surrounds the object of interest.

When this happens the excess area can be gotten rid of in two ways—the picture can be made from a viewpoint that is nearer the subject, so that only what is wanted will be included within the field of view, or, it can be made from the best point of view, and the excess area removed when making the print.

This latter course should always be adopted, because the perspective, that is, the drawing of the picture, depends solely on the viewpoint from which the picture is made. This means that if the camera is placed at the spot from which the perspective looks pleasing to the eye the lens will put that same perspective into the picture.

The most popular way of removing what is not wanted from the margins of the picture area is by placing a mask over the negative in a printing frame, so that the finished print will show only as much of what the negative contains as can be seen through the opening in the mask.

Masks can be cut from opaque paper, but making masks that have straight lines and true right angle corners is troublesome, and opaque masks are not as desirable as transparent ones which permit us to see exactly what we are masking off.

The most convenient masks are made of orange-red Kodaloid, which is so transparent that when it is placed over a negative we can see all that is in the negative, and can thus make sure that nothing is being masked off that should be included in the picture.

Though an orange-red Kodaloid mask is perfectly transparent it makes the light that passes through it of so non-actinic a color that this light will not affect the silver on the printing paper in the length of time it takes to make a print through the opening in the mask.

The Kodaloid Printing Masks that are made for use in Maskit Printing Frames are furnished in sets of three, each having a different size of opening. They are made for use with $3\frac{1}{4} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 5\frac{1}{2}$ and 5×7 negatives.

Eastman Printing Masks, which are also made of transparent orange-red Kodaloid, for use in all the regular printing frames, are furnished in eight masking sizes for 3A, seven masking sizes for 4×5 and six masking sizes for 5×7 negatives.

Transparent printing masks are especially desirable because, in addition to their convenience and durability, their use will improve the pictorial quality of our picture by masking off marginal images which, if not removed, might prevent the attention from centering on the points of interest, and they also place a plain border around the pictures which gives unmounted

photographs a finished look. This plain border greatly enhances the appearance of photographs that are mounted in albums, which is the only really satisfactory place for keeping them.

MAKING AUTOGRAPHIC RECORDS AT NIGHT

THE time when an autographic record should be made is immediately after the film has been exposed.

When pictures are made indoors, at night, by flashlight or by any other artificial light, the autographic record can be made by the light of a lamp.

Lamps are of so many kinds and sizes, and the light that different lamps give is of such varying degrees of brilliancy, that it would be impossible to list them all, but as incandescent electric, Welsbach gas, and kerosene oil lamps are in general use we can give the approximate length of time it takes for making an autographic record by these.

It will be noted that in the following table the same length of exposure is suggested for printing the record by the light of a 16 C.P. Carbon as by the light of a 60 watt Mazda lamp, though the difference in the actinic brilliancy of these is considerable, but the latitude of an Eastman film is so great that it takes care of this difference.

INCANDESCENT ELECTRIC LAMPS

The autographic slot to be 2 inches from the lamp
From 16 to 64 C. P. Carbon, or from 15 to 60 watt Mazda
30 to 60 seconds

WELSBACH GAS LAMPS

The autographic slot to be 6 inches from the lamp
30 to 60 seconds

ART IN THE FIELD
Made with a Vest Pocket Kodak

ROCHESTER BURNER KEROSENE OIL LAMPS
or
ROUND WICK STUDENT LAMPS

The autographic slot to be 3 inches from the lamp
1 to 2 minutes.

For flat wick kerosene lamps the exposure should usually be from 3 to 10 times as long as for a Rochester burner, or round wick Student Lamp, depending on the width of the wick.

"LITTLE FELLOWS WHOLESALE"
Made with a Premo

WHEN THE ATMOSPHERE IS HAZY

THE atmosphere that is immediately above large manufacturing cities is more often hazy than clear, and the first attempt of one who has had no experience in photographing distant objects through such an atmosphere is apt to produce a picture as lacking in contrast as Fig. 1, on page 14.

About the only time when a much better result than is shown in Fig. 1 can be obtained, without the use of a suitable filter, is after a rain storm, when the temperature has dropped and the air has become clear.

If we had to wait for ideal conditions in order to make birdseye views of a city we might wait for weeks. That this is not necessary is shown by Fig. 2, on page 15, which was made less than one minute after Fig. 1.

Both pictures were taken with a 3A Kodak on the same roll of Kodak film. As the roll was developed in the tank both negatives received exactly the same development, in the same developer, for the same length of time. Neither negative was intensified or reduced or "doctored" in any way whatever, and the illustrations faithfully represent what the negatives contain.

It will be noted that the only difference between these pictures is a difference in contrast, the lack of contrast making Fig. 1 dull and

FIG. 1
No Filter; Exposure, 1-50 of a second

unsatisfactory, while the ample contrast in Fig. 2 gives the snap and brilliancy needed for making the various objects of interest appear conspicuous in the picture.

Fig. 1 shows the result of photographing through a hazy atmosphere without using a filter, while Fig. 2 shows what was obtained by photographing through the same atmosphere with a Wratten G Filter in front of the lens.

The different rendering of the subject, as shown by these two pictures, is solely due to the effect produced by the filter. A longer or a shorter exposure, or a longer or shorter development for either the negative or the print, or the use of any other kind of paper for the making of the print, for Fig. 1, could not have given us what is shown in Fig. 2. And neither would intensification or reduction of the negative produce such a result.

The reason for this is that the absence of a filter allowed all the color of which white light is composed to reach the film, in the case of Fig. 1, while the Wratten G Filter prevented all of the ultra violet, all of the violet and all of the blue rays from reaching the film from which Fig. 2 was printed.

The rays which the G filter cuts out are those which are most strongly reflected from the minute particles of water, and the extremely small particles of dust, of which the haze with which we are all familiar, is usually composed.

Since the G filter cuts out the blue-violet but passes the green and yellow, to which Kodak film is also sensitive, it is evident that Fig. 2 is the result of making the picture by yellow-green light.

FIG. 2
With G Filter; Exposure, 5 seconds

The Wratten G Filter is of a much deeper yellow color than the Kodak or the K filters. These latter are orthochromatic filters which do not put more tone contrast into the negative than can be seen in the subject, but the Wratten G Filter is not an orthochromatic filter; it is a contrast filter and it does put more tone contrast into the negative than is visible in the subject.

The G filter is especially suitable for photographing distant landscapes which are under haze, and subjects similar to those represented by our illustrations.

Splendid as are the results which the G filter gives in increasing contrast, it must not be supposed that it will enable us to make brilliant pictures of objects that can only be dimly seen through fog, dense smoke or clouds of dust, for fog is much denser than haze, and smoke and dust contain solid matter through which daylight cannot pass.

The multiplying factor for the G filter, when used with Kodak Film, is 100. This factor, which calls for an exposure 100 times as long as would be needed without the filter, provides for recording the same amount of shadow detail in nearby objects, with the filter, as would be recorded if the exposure was only $\frac{1}{100}$ as long without a filter.

When the G filter is used for photographing cloud forms, or extremely distant landscapes that have nothing of interest in the foreground, it should be remembered that the exposure should not be 100 times as long as the exposure needed for a nearby landscape, but 100 times as long as is needed for *extremely distant landscapes*, which require only one-half the exposure that nearby landscapes need.

"DOWN TO T

NOTES FROM E
ADVENTURE

SEA"

IN THE ESTEREL MOUNTAINS NEAR ST. RAPHAEL, FRANCE
Made with a 3A Kodak; K2 Filter; stop, 32; 1-10 sec. exposure

THE LENS STOP

PHOTOGRAPHIC lenses are fitted with stops of various sizes. These stops, which are also known as diaphragms, are used for regulating the amount of light that passes through the lens. A large stop will allow more light to pass through the lens than a small one, just as a large window allows more light to enter a room than a small window does.

The exposure needed for obtaining a correctly timed negative depends on the intensity or brilliancy of the light that reaches the film, and since the size of the stop affects the volume of the light that passes through the lens it is important for the photographer to know the relative exposure values of the stops with which his lens is fitted.

There are two systems of marking lens stops: The U. S. (Uniform System) is ordinarily used on rectilinear lenses, and its markings are based on the relation between the *area* of the stop and the focal length of the lens, while the *f.* system is in practically universal use on anastigmat lenses, and its markings are based on the relation between the *diameter* of the effective stop opening and the focal length of the lens.

Different numerals are used for expressing the relative values of the stops in these two systems, but in both systems all stops that bear a higher number than U. S. 4 or *f.*8 admit just half as much light as the next lower numbered stop. This means that for all higher numbered stops the exposure must be doubled when the stop indicator is moved from any one stop number to the next higher number and must be halved when the indicator

IN CHARTRES CATHEDRAL
Made with a Premo Camera; stop, f. 8; 5 min. exposure

is moved from any stop number to the next lower number. To illustrate: should the correct exposure be 1/25 of a second through stop 16 it would be 1/50 of a second through stop U. S. 8 or *f*. 11, and 1/12 of a second through stop U. S. 32 or *f*. 22.

The numerals used for marking the stops in the Uniform and *f*. systems are listed in the first two columns of the accompanying table.

In the third column the values of these stops are compared with the exposure value of *f*. 8 (U. S. 4) which is the largest stop on rectilinear lenses.

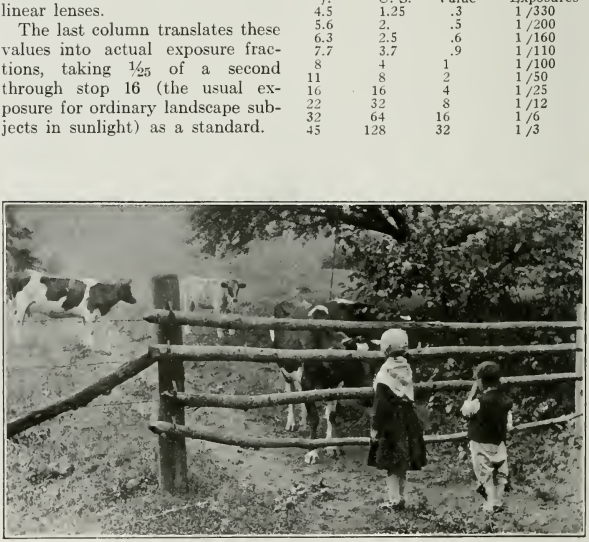
The last column translates these values into actual exposure fractions, taking 1/25 of a second through stop 16 (the usual exposure for ordinary landscape subjects in sunlight) as a standard.

Lens stops that are marked 4.5, 5.6, 6.3 and 7.7 are only used on anastigmats.

No photographic shutter has all the speed markings listed in the last column; but the correct exposure can always be given by using the stop that the available shutter speed calls for, and, if 1/10 should be used in place of 1/12, 1/5 in place of 1/6 or 1/2 in place of 1/3, the latitude of the film will take care of the slight error.

COMPARATIVE STOP VALUES

f.	U. S.	Exposure Value	Comparative Exposures
4.5	1.25	.3	1/330
5.6	2.	.5	1/200
6.3	2.5	.6	1/160
7.7	3.7	.9	1/110
8	4	1	1/100
11	8	2	1/50
16	16	4	1/25
22	32	8	1/12
32	64	16	1/6
45	128	32	1/3



THE PASTURE GATE
Made with a 3A Kodak

THE REAPERS
Made with an O Brownie

SAME STOP VALUE CALLS FOR THE SAME EXPOSURE WITH ALL TYPES OF LENSES

WHEN we speak of the so-called "speed" of a lens we refer to the *f.* value of its largest stop. The *f.* value is the relation that exists between the diameter of its effective aperture and its focal length. If, for instance, this diameter is 1 inch and the focal length is 8 inches the *f.* value is $8 \div 1$. This is called *f.*8.

The "speed" at which a lens works is determined by the amount of light that it transmits to the film, and while this depends on several factors, some of the light being absorbed and some reflected by the lens, yet for all practical purposes we may regard it as being determined by the *f.* value of the stop used. The larger the stop the more light the lens will pass and the shorter the exposure that needs to be given.

The largest stop on a meniscus, which is a single lens, is smaller than the largest stop on a rectilinear, which is a double lens. The largest stop on a rectilinear is *f.*8 (U. S. 4).

An *f.*7.7 anastigmat is nearly 8% faster than a rectilinear, an *f.*6.3 anastigmat is about 62% faster and an *f.*4.5 anastigmat is about three times as fast as a rectilinear, but, it must be remembered that when any anastigmat is stopped down to, say, *f.*8 it works at *f.*8 speed and it is then necessary to give the same exposure with the anastigmat as is needed with any other kind of lens that is used with stop *f.*8. (See table of comparative stop values on preceding page).

The rule is, to give the same exposure with all kinds of lenses when the stop used on each has the same *f.* value. When it is desired to give shorter exposure with an anastigmat than with other lenses the anastigmat must be used with a larger stop than the other lenses.

THE TRAIL
Made with a 3A Kodak; f. 22; 1-10 sec. exposure

HIGH WATER ON THE SEINE AT PARIS
Made with a 3A Kodak; stop, 16; 1-25 second exposure

TENTATIVE DEVELOPMENT

Some years ago there was a great deal of controversy among photographers about the relative importance of correct exposure and correct development. Some contended that errors in exposure could be overcome in development, while others maintained that no method of development could compensate for under or over exposure.

Had the knowledge which scientific research has placed at our disposal in recent years been available at the time, this controversy never would have arisen.

The essential facts regarding exposure and development, which are briefly stated in the following article, were presented to our readers in the October, 1917, KODAKERY. *We reprint them in answer to the direct and implied queries that have appeared in some of the correspondence we have received from our new readers.*

BEFORE it was discovered that several negatives could be correctly developed together in a tank, photographers developed their negatives, usually singly, in a tray. A common practice was to judge by the appearance of the image in the early stages of development whether the exposure the film or plate had received was correct or incorrect, and if, in the opinion of the photographer, the exposure was not correct, changes were made in the developer as soon as the exposure error was discovered. These changes were made in the belief that the developer could counteract the effects of

AN ALPINE VILLAGE
Made with a No. 3 Kodak

under-exposure or over-exposure. This was a tentative or experimental method of development.

Viewed in the light of modern knowledge, tentative development is a profitless procedure, not only because it is wasteful of time and chemicals, but chiefly because the theory on which the method is based has been proven erroneous.

A negative is made by exposing a film or plate in a camera and then developing it. In discussing tentative development we have, therefore, but two things to consider—exposure and development.

The record the light makes on a film or plate is determined solely by the exposure. How much or how little of the light record the finished negative contains is determined solely by development. The developer makes the latent image visible. Where the light has not acted there can be no image. Trying to coax out an image which is not latent in the film is a hopeless procedure, and the theory that by diluting the developer, or by adding carbonate to the developer, in tentative development, more detail can be developed than by any other method, is erroneous.

The companion theory, that bromide of potash will increase contrast in an over-exposed negative if it is added to the developer after the negative has been developed far enough to show that it really was over-exposed, is likewise erroneous. The image in an over-exposed negative flashes up so

quickly in tentative development that the shadow detail usually becomes visible before one can discover that the negative was over-exposed. If bromide is added to the developer after this shadow detail has become visible it will slow the development, but will have very little, if any, influence on the contrast of the negative. In order to increase the contrast the bromide must be added to the developer *before* the shadow detail is visible.

Since tentative development neither enables us to add detail to under-exposed negatives nor contrast to over-exposed negatives, it offers no practical advantages whatever. By far the best method of developing negatives is to develop them for a given time, with a developer of a given strength, at a given temperature. This is the method employed in tank development. It is equally suitable for tray development, though in tray development it is advisable to use only ⅓ as much water in making up the developer and to develop for only ⅓ the length of time recommended for tank development. When this method is applied to tray development the difficulty in deciding when to stop development is eliminated.

Strange as it may seem, when correctly exposed, under-exposed and over-exposed films are all developed together, for the same length of time in an Eastman Film Tank, in accordance with the instructions that are furnished with the Tank, they will all make good prints, unless the incorrectly exposed ones were hopelessly under-exposed or over-exposed. From hopelessly bad exposure it is manifestly impossible to obtain good negatives by any known method of development.

CAMPING IN NORMANDY
Made with a No. 3 Kodak

SAINT TROPEZ, FRANCE

Made with a 3A Kodak; stop 32; 1-10 sec. exposure

FOR MAKING BETTER PICTURES

"I AM *enclosing a number of negatives and prints which I would like to have you look over and criticise. You have done this for me several times and your comments have been of great assistance to me in my camera work.*"

"I want to thank you exceedingly for your courtesy in this matter and for the trouble you have undoubtedly gone to, which, I assure you, is deeply appreciated."

"Your kind favor, along with a sheet of good sound instructions on exposure, to hand, and I wish to express my appreciation of your thoughtfulness in the matter."

The above are extracts from three of the many letters we have received from readers who availed themselves of our offer to assist all amateur photographers in solving such problems as may arise in their photographic work.

Should you encounter any photographic problems which you cannot readily solve send them to us; we will take pleasure in assisting you.

If you have any difficulty in making good negatives and prints, send us both the negatives and the prints and we will tell you where the trouble lies.

We need the negatives as well as the prints, since it is only by examining the negative from which a print was made that we can tell if the right or the wrong grade of paper was used, and, the only way to determine whether the film was correctly exposed and correctly developed is, of course, by examining the negative.

Give us all the data pertaining to negatives and prints that you possess, such, for instance, as the month, the time of day, the light conditions when the films were exposed, the stop and shutter speed used and whether the negatives were developed in the tray or in the tank.

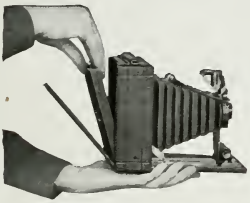
We would also like to know the name and grade of paper on which the prints were made.

All negatives and prints will be promptly returned, together with our comments and suggestions, which are offered free.

Address all communications,

"KODAKERY," CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.

Premo Film Packs



QUALITY and convenience—plus the greatest simplicity and rapidity in daylight loading and film changing, are the exceptional advantages of the Premo Film Pack.

••

JUST insert the pack in a Premo Film Pack camera, pull out a paper tab—and you are ready. To change film after exposure, pull out the next numbered paper tab. When the twelfth tab is drawn the Pack is sealed and may be removed in daylight.

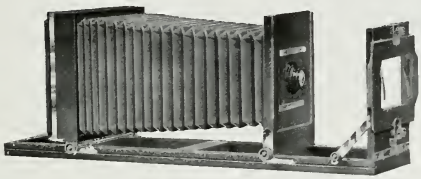
••

IF you have a plate camera convert it into a film camera with the Premo Film Pack Adapter. The adapter is used in the camera just like a plate holder, but it carries twelve exposures with one loading instead of only two.

Ask your Kodak dealer for a free copy of the Premo Catalogue.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

GRAFLEX ENLARGING CAMERA



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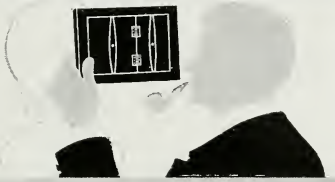

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A
MAGAZINE for AMATEUR
PHOTOGRAPHERS

JANUARY 1920

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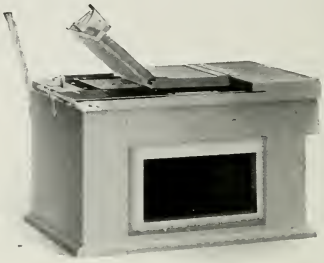

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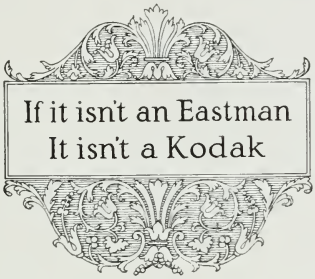
If it isn't an Eastman
It isn't a Kodak

THE HEARTHSTONE
Made with a Kodak

KODAKERY

A Journal for Amateur Photographers

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VOL. VII JANUARY, 1920 No. 3

Made with a Kodak

IN this age of engines, of extraordinary mechanical helps to all sorts of industry, a picture of absolutely primitive power has a simple impressiveness. The ox as a draft animal carries us back to the most ancient lands and the most ancient times—he seems to belong as much to the beginning of things as the hills that majestically frame him.

Under Printed—Printed 2 seconds

HOW TO DETERMINE THE RIGHT LENGTH OF TIME TO PRINT

PHOTOGRAPHIC prints can be made on development paper either by daylight or by any artificial light that is used in the home. Artificial light is preferable when several prints are to be made from the same negative because its brightness remains practically constant while the brightness of daylight is apt to change rapidly.

In the making of a print the first thing to determine is the length of time the paper should be exposed, under a negative, to the printing light, and in order to determine this with accuracy we must keep all the factors, that enter into the making of a print, constant.

The factors we have to consider for determining the right length of time to print are, the distance the printing frame is placed from the

Under Printed—Printed 3 seconds

printing light, the temperature of the developer, and the length of time the print is developed.

By always placing the printing frame at the same distance from the light (not less than the diagonal of the negative), by keeping the developer at the same temperature (about 70 degrees), and by developing the prints for exactly the same length of time (20 seconds for Regular and Contrast Velox, or 30 seconds for Special Velox), we will keep all the factors constant, and from these three known quantities we can quickly and accurately determine the one unknown quantity, that is, the right length of time to print.

Our illustrations are from Special Velox prints that were printed at a distance of 10 inches from a 60 watt mazda lamp. They were developed in the regular Elon-Hydrochinon developer that is recommended on the instruction sheet that explains how to use Velox paper. The temperature of the

Over Printed—Printed 9 seconds

developer was 70 degrees, Fahrenheit, and each print was developed for exactly 30 seconds.

The print that was exposed to the printing light for 2 seconds was under-printed. This is why it looks so weak and does not contain all the tones that were plainly visible in the negative. The one that was exposed for 3 seconds was also under-printed, while the print that was exposed for 6 seconds was printed for the right length of time, and as a result, it records all the detail and the same range of contrast that is visible in the negative.

In the print that was exposed for 9 seconds, some of the middle tones are almost as dark as the shadows. This tells us that the print was exposed to the printing light for too long a time.

A comparison of these pictures will show that by under-printing we lose detail and fail to get the right degree of contrast between the tones, and by over-printing we also

Correctly Printed—Printed 6 seconds

lose detail through rendering some tones too dark, but that by printing for the right length of time we retain all the detail and record the right degree of contrast between the tones.

Brief and simple as is the method we have explained for determining the right length of time to print it must be remembered that accurate and uniform results depend on keeping the factors constant. The timing of the printing and the timing of the development must be done by observing the second hand on a watch, or, what is vastly more convenient, by observing the hand on an Eastman Timer, which records seconds as it travels around a dial as large as that on the ordinary alarm clock This is especially made for use in the darkroom and in the subdued light where printing and developing must be done.

The length of time the print is exposed to the printing light is the most important factor that enters

into the making of a print, because it is impossible to compensate for an error in printing by any method of development.

Some photographers keep records of the grade of paper used, the distance from the printing light the printing frame was placed and the length of time it took to secure correctly printed prints from their various negatives.

Such records save time and material when prints are to be made from the negatives at a later date.

THE RUSSIAN CHURCH AT NICE

Made with a 3A Folding Kodak; K3 Filter, stop, 32; 1 sec. exposure

THE LENGTH OF TIME A VELOX PRINT SHOULD BE DEVELOPED

In the preceding article, "How to Determine The Right Length Of Time To Print" we have explained that the factors to be considered for finding this time are, the distance the printing frame is placed from the printing light, the temperature of the developer and the length of time the print is developed; and we pointed out that by keeping these factors constant we can, by experiment, quickly discover the right length of time to print from any negative.

In developing Velox prints there is nothing we need to determine by experiment, because all the factors have been determined for us, by the makers of the paper. These factors are, the strength of the developer, the temperature of the developer, and the length of time the print is left in the developer.

The instructions that explain how to manipulate Velox paper recommend the use of those developing solutions which experience has proven most suitable for the paper; they tell us how to make up the developer ourselves, from the separate chemicals, if we prefer to do so, and they also tell us at what temperature the developer should be used and the length of time the print should be left in the developer.

Velox paper is made in three grades, or degrees, of contrast, known as Contrast, Regular and Special; and in five surface finishes, known as Carbon, Portrait, Velvet, Glossy and Royal. The difference in contrast between the

Under-developed —5 seconds

Under-developed— 10 seconds

Developed 40 seconds—Showing that nothing is gained by prolonged development of a correctly printed print

Contrast, Regular and Special grades is due to the difference in the emulsions, not to the difference in the surface finishes.

The instructions for the use of Velox state that the developer should be used at a temperature of about 70 degrees and that Contrast and Regular should be developed for from 15 to 20 seconds, while Special Velox should be developed for about 30 seconds.

Since development is a chemical process it is evident that we cannot make changes in the strength or temperature of the developer or greatly increase or decrease the length of time of development without affecting the quality of our prints. This is a subject that will be discussed in a future number. In this article we will confine our discussion to the development, for different lengths of time, of correctly printed prints, in a developer that is of the right strength and at the right temperature.

If a correctly printed print is

Correctly developed—30 seconds

taken out of the developer too soon it will be under-developed; some of the tones that are in the negative will be lacking in the print, with the result that all parts of the picture, but those that should appear white, will be too light in tone.

But should a correctly printed print be left in the developer for too long a time it will not be over-developed, in the way that a negative would be, for the reason that in a *correctly* printed print the light affected only as much silver as was needed for rightly rendering the tones of which the picture is composed, and as a suitable developer will develop all these tones in the times we have stated for the three grades of Velox paper, it is evident that leaving a print in the developer after it is fully developed is useless.

While a slight increase in the time that a print is left in the developer may do no harm and may have little, if any perceptible effect on a correctly printed print, yet

greatly increasing the time will fog and may also stain the print.

The inference to be drawn from what we have stated is, that it is impossible to *over-develop* a correctly printed print. Surprising as this may seem, it is a fact, because the development of a Velox print proceeds to a certain point and then stops. It stops when all the silver on which the light has acted has been blackened, and, when we realize this, and also realize that the full development of a print is necessary for correctly translating the negative image in a film to a positive image on a print, we must conclude that the fundamental thing in making prints is, as stated in the last paragraph on page 7, to expose the print to the printing light for the right length of time

If our print is too contrasty or too flat, after it was correctly printed and correctly developed, it will be because we used the wrong grade of paper, or because our negative has too much or too little contrast. On the opposite page we explain how to choose the paper to fit the negative and on page 18 we explain how to increase and also how to decrease the contrast in over-dense negatives.

Should you change your address be sure to notify us promptly, giving both the old and new addresses. KODAKERY is mailed as third class matter and as the post office forwards none but first class mail, free of charge, you will not receive your KODAKERY at your new address unless you tell us what that address is.

A PRIM ENGLISH VILLAGE IN MIDDLESEX
Made with 2C Kodak Junior

FIG. 1
Showing only the extremes of light and shade

SELECTING THE PAPER THAT FITS THE NEGATIVE

IN choosing a printing paper we should select the grade that will best reproduce the scale of tones that we can see in the negative.

Any paper can render the darkest or the lightest tone a negative contains, but since there are several tones in a picture we need a paper that will render, not only the lightest or the darkest, but both the lightest and the darkest together with the halftones which are intermediate between these.

Should we make a print from a contrasty negative on a contrasty grade of paper, exposing the paper to the printing light for the length of time that is needed for recording the detail in the strong lights, we would get a result similar to that shown in Fig. 1, and, should we print, on the same grade of paper, for the detail in the shadows instead of for the highlight detail, the result would be similar to that shown in Fig. 2.

In the one case we recorded the detail in the highlights but lost the shadow detail, and in the other case we recorded the detail in the shadows but lost the highlight detail. Since neither print records *both* shadow and highlight detail and neither print shows a satisfactory rendering of the halftones, it is evident that the paper was too contrasty for the negative.

By making a print on a softer (less contrasty) paper we obtained

FIG. 2
Losing the highlight detail and some of the middle tones

what is shown in Fig. 3. This picture records practically all the tones there are in the negative, and it is, therefore, the grade of paper that is adapted for the negative.

The rule for selecting a printing paper is, to choose a paper that is not contrasty for a negative that is contrasty, a paper that records medium contrast for a negative of medium contrast, and a contrasty paper for a negative that lacks sufficient contrast. In other words, a soft paper for a hard negative, a hard paper for a soft negative and a paper that will record about the same contrast as the negative shows for a negative of medium contrast.

Contrast Velox is suitable for soft or flat negatives, Regular Velox for negatives of medium contrast, and Special Velox for hard or contrasty negatives.

When the softest prints that can be made on Velox paper are desired. Portrait Velox should be used and developed with the N. A. Velox Liquid Developer.

Portrait Velox has a very smooth matte surface, without gloss or luster, and it gives superb prints from the contrasty negatives for which it is adapted.

Loose prints are apt to become soiled and the collection can easily be broken.

Prints that are mounted in an album are protected and the album keeps the collection intact.

FIG. 3
Recording on the print all the tones the negative contains

THE DISTANCE THE PRINTING FRAME IS PLACED FROM THE PRINTING LIGHT

THE length of time it takes to make a print by artificial light depends on the density of the negative, the sensitiveness of the paper, the actinic brilliancy of the light and the strength of the light at the point where the printing frame is placed.

The density of the negative, the sensitiveness of the paper and the actinic brilliancy of any particular light are fixed quantities, but the strength of the light that reaches the printing frame we can easily change because it depends on the distance the printing frame is placed from the light.

The closer the frame is to the light the quicker the printing, but if the frame is placed too close to the light the negative will not be uniformly illuminated; some parts will be more strongly lighted than other parts, and, as a result, the print will not be uniformly printed.

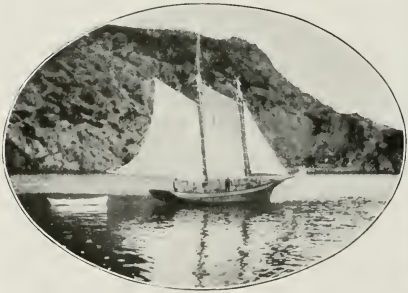
The way to secure a uniform illumination, which will insure the same strength of light reaching all parts of the negative is to always place the printing frame as far, or farther, from the light as the length of the diagonal of the negative.

The diagonals of the various sizes of negatives that are made in modern hand cameras are:

1⅝ x 2½	3 inches
2¼ x 2¼	3¼ inches
2¼ x 3¼	4 inches
2½ x 4¼	4⅞ inches
2⅞ x 4⅞	5⅝ inches
3¼ x 4¼	5⅜ inches
3¼ x 5½	6⅜ inches
4 x 5	6⅜ inches

BITS OF PI
AS THE CAM

FROM
A KODAK
ALBUM



RESQUENESS
FINDS THEM

Showing that a Cutting Reducer removes an equal amount of silver from shadows, halftones and highlights.

FIG. 1

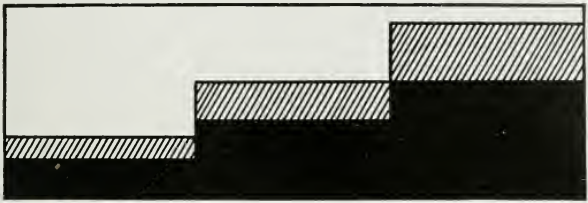
REDUCTION

SOMETIMES negatives are obtained which are so dense that they are difficult to print. Other negatives are so contrasty that they give harsh prints. In order to improve these negatives recourse may be had to the process called "reduction," that is, to the removal of some of the silver by treatment with a chemical which dissolves the metallic silver of the image.

It is unfortunate that the word "reduction" is used in English for this purpose. In other languages the word "weakening" is used and it is undoubtedly a better word because the chemical action involved in the removal of silver from a negative is oxidation, and the use of the word reduction leads to confusion with true chemical reduction such as occurs in development.

In order to produce the best results it is necessary that the reduction should be suitable for the negative which is to be treated. Thus, in the case of a negative which is too dense all over, it is necessary to remove the density uniformly, while in the case of one which is too contrasty what is required is not the removal of the silver from highlights and shadows alike, but the lessening of the deposit on the highlights without affecting the shadows.

In Fig. 1 we see a diagram which represents a negative originally dense from which by the removal of an equal amount of silver from shadows, halftones and highlights there can be obtained a negative of proper gradation. A reducer which effects this uniform removal of density is generally called a "cutting reducer." The typical "cutting reducer" is that known as Farmer's reducer which is made by preparing a strong solution of potassium ferricyanide, otherwise known as Red Prussiate of Potash, and adding a few drops of this to a solution of plain hypo until the latter is yellow. This reducer will not keep when mixed so that the ferricyanide must be added to the hypo only when required for use. It is especially useful for clearing negatives or lantern slides and is often used



SHADOWS HALFTONES HIGHLIGHTS

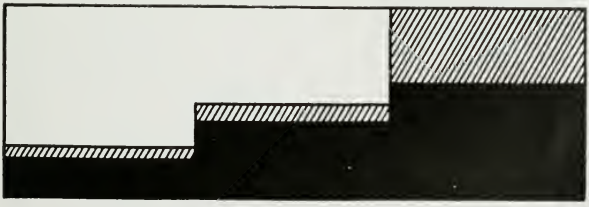
Showing that the same percentage of silver is removed from all the tones by a Proportional Reducer

FIG. 2

for local reduction, the solution being applied with a wad of absorbent cotton to the part which is to be lightened. Another cutting reducer is permanganate, which is supplied under the name of the "Eastman Reducer." Permanganate, however, tends to act more proportionally on the highlights and shadows than is the case with ferricyanide.

Proportional reducers are those which act on all parts of the negative in proportion to the amount of silver present there. They thus exactly undo the action of development since during development the density of all parts of a negative increases proportionately. A correctly exposed, but overdeveloped negative should, therefore, be reduced with a proportional reducer. This effect is shown in Fig. 2 where it is seen that the contrast of the negative is far too great owing to over-development, and that by removing the same proportion of the silver from the shadows, halftones, and highlights, a negative of correct contrast can be obtained.

Unfortunately there are no single reducers which are exactly proportional in their action but by mixing permanganate, which is a slightly



SHADOWS HALFTONES HIGHLIGHTS

Showing that a Flattening Reducer removes more silver from the dense than from the thin parts of a negative

FIG. 3

A

A *shows a negative that is too dense all over, and* B *shows the result of using Farmer's Reducer*

cutting reducer, with persulphate, which is a flattening reducer, a proportional reducer may be obtained. Flattening reducers are required for negatives which have been under-exposed and then over-developed. In these cases the negative is much too contrasty but it is important not to remove any of the deposit from the shadows, since owing to the under-exposure, there is already insufficient deposit in the shadows.

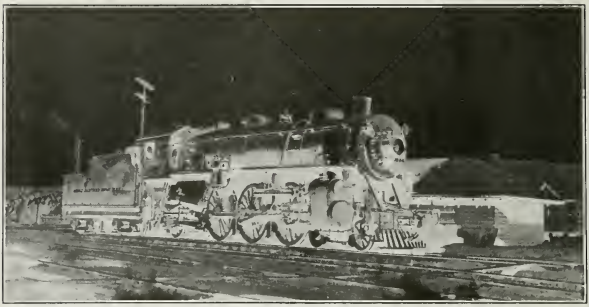
What is required in this case is shown in Fig. 3, where a large amount of deposit is removed from the highlights, a smaller amount from the halftones, and very little or none from the shadows. This can be accomplished by the use of ammonium persulphate. Ammonium persulphate attacks silver deposit with the formation of silver sulphate and this attack is increased by the silver salt which is produced, the rate of attack increasing as the attack goes on. Such chemical actions are called "autocatalytic," a "catalyst" being a substance which increases the rate of a chemical action without actually taking part in it, and an autocatalytic action being one in which the rate of action increases of its own accord. Since the action of ammonium persulphate is autocatalytic it acts most rapidly where the greatest amount of silver is

B

A

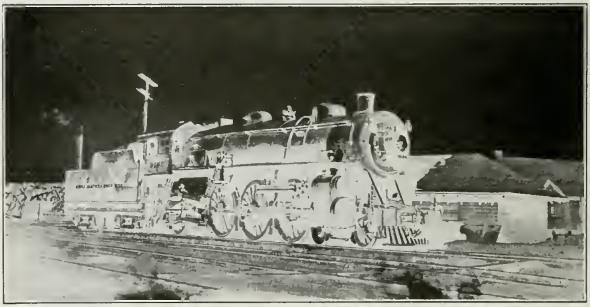
Showing, A, a correctly exposed but over-developed negative, and, B, the result of reducing with a Proportional Reducer.

B



A

Showing, A, *a negative that is too dense in the highlights with deep shadows that are not clear, and,* B, *the effect that the Eastman Reducer has on such a negative.*



B

present, and consequently it attacks the highlights far more energetically than it attacks the shadows of the negative and is, therefore, suitable for the reduction of underexposed over-developed negatives. (Whether any silver will be removed from the shadows will depend on how long the reducer is allowed to act.) Because it is autocatalytic in its action, however, it is very likely to go too far and get out of control so that it is not by any means an easy reducer to handle, and it is not recommended that it be used upon a valuable neg-

A

A represents a negative that has very dense, blocked up highlights, and B shows that a Flattening Reducer removes much silver from the Highlights, less from the Halftones and little or none from the Shadows of such a negative.

B

ative unless the user has had considerable experience of its action.

For some time after ammonium persulphate was introduced as a reducer for negatives its action was very uncertain; some samples would reduce silver while others would not. When this peculiarity in its behavior was investigated by the Research Laboratory of the Kodak Company the explanation thereof was found to be a chemical difference in some of the samples tested.

Ammonium persulphate which is prepared expressly for photographic use should therefore always be procured.

A PYRENEES FARM HOUSE
Made with a 3A Folding Kodak; stop, 32; 1-5 sec. exposure

FORMULAS FOR REDUCERS

Since the charactersitic action of each of the four reducers, for which the formulas are given below, is stated under the name of the reducer, and the illustrations for the article entitled "Reduction" (page 18) show the kinds of negatives for which each reducer is best adapted, the photographer can readily determine which one to use for any negative that is too dense.

Farmer's reducer has probably been more extensively used than any other, as it was introduced long before the others were known. The writer, however, prefers the action of permanganate to that of the red prussiate used in Farmer's reducer because very few negatives can be improved by reduction unless they were over-developed, and, if they were over-developed with pyro they usually have a pyro stain. Permanganate removes this stain and thus makes less reduction necessary. Farmer's reducer does not remove pyro stain, so that its action is only of benefit in the removing of silver.

The permanganate reducer is especially convenient for the amateur who does not care to weigh out and mix the separate chemicals. This reducer can be obtained, in small glass tubes, from all Kodak dealers, under the name of Eastman Reducer, while the others must be made up by the photographer himself.

Negatives that are to be reduced should be placed in water for about 20 minutes before they are immersed in any reducing solution.

The tray in which a negative is being reduced should be gently

rocked to insure uniform action of the reducer.

No reducer that is mixed, ready for use, will keep in good working condition for any length of time, and after it has been once used it should be discarded. It is economy to use a fresh solution for each negative.

If a negative is still too dense after it has been reduced the process of reduction can be repeated. All the chemicals must, of course, be washed out of the negative before the second reduction is undertaken.

The hands should always be washed after using reducers as some of the chemicals of which they are composed are poisonous.

Avoirdupois weight is used in the following formulas:

FARMER'S REDUCER

For removing an equal amount of silver from all parts of a negative.

Water	4 ounces
Hyposulphite of Soda	1 ounce

After the Hypo has been dissolved add just enough Red Prussiate of Potash to make the solution a lemon yellow color

The negative must be thoroughly washed after it has been reduced.

PERMANGANATE REDUCER

For removing a little more silver from the dense than from the thin parts of a negative.

SOLUTION A

Water	1 ounce
Permanganate of Potash	24 grains

SOLUTION B

Water	1 ounce
Sulphuric Acid, C. P.	24 minims or drops

Take 1 dram A, 2 drams B, and 8 ounces water. When the negative has been sufficiently reduced immerse it in a fresh acid fixing bath and leave it there for a few minutes after all the color which the reducer may have imparted to the negative has disappeared. Then wash the negative thoroughly.

PERSULPHATE REDUCER

For removing much more silver from the dense than from the thin parts of a negative.

Water	4 ounces
Persulphate of Ammonia	½ ounce
Sulphuric Acid, C. P.	20 minims or drops

The speed with which this reducer acts increases as reduction proceeds. The appearance of a trace of milkiness, when a negative is being reduced, indicates that reduction is speeding up. At this stage the negative must be closely watched, and it should be taken out of the reducer just *before* enough silver has been removed, quickly rinsed and *immediately* immersed in a fresh acid fixing bath, where it should be left for a few minutes, and then thoroughly washed.

Just when to stop the reduction can only be learned from experience, and those who have had no experience with this reducer should experiment with negatives that are of no value before attempting to reduce one that is valuable.

A negative that has been reduced too much with persulphate is too flat, because the contrast has been removed and it cannot be replaced by any method known.

PROPORTIONAL REDUCER

For removing silver from a negative in proportion to its density. For instance, if 25% is removed

from the highlights, 25% will be removed from the half-tones, and 25% from the shadows.

Solution A		
Water	16	ounces
Permanganate of Potash .	2	grains
10% Solution of Sulphuric Acid, C. P.	¼	ounce

Solution B		
Water	32	ounces
Persulphate of Ammonia .	1	ounce

Take 1 part A and 3 parts B. This will usually reduce the negative sufficiently in 3 minutes' time. After the negative has been reduced it must be rinsed and then given a 5-minute immersion in a 1% solution of Metabisulphite of Potash, or Bisulphite of Soda, after which it must be thoroughly washed.

ROYAL CASTLE AT LISBON
Made with a Kodak

FOR MAKING BETTER PICTURES

"I AM *enclosing a number of negatives and prints which I would like to have you look over and criticise. You have done this for me several times and your comments have been of great assistance to me in my camera work.*"

"*I want to thank you exceedingly for your courtesy in this matter and for the trouble you have undoubtedly gone to, which, I assure you, is deeply appreciated.*"

"*Your kind favor, along with a sheet of good sound instructions on exposure, to hand, and I wish to express my appreciation of your thoughtfulness in the matter.*"

The above are extracts from three of the many letters we have received from readers who availed themselves of our offer to assist all amateur photographers in solving such problems as may arise in their photographic work.

Should you encounter any photographic problems which you cannot readily solve send them to us; we will take pleasure in assisting you.

If you have any difficulty in making good negatives and prints send us both the negatives and the prints and we will tell you where the trouble lies.

We need the negatives as well as the prints, since it is only by examining the negative from which a print was made that we can tell if the right or the wrong grade of paper was used, and, the only way to determine whether the film was correctly exposed and correctly developed is, of course, by examining the negative.

Give us all the data pertaining to negatives and prints that you possess, such, for instance, as the month, the time of day, the light conditions when the films were exposed, the stop and shutter speed used and whether the negatives were developed in the tray or in the tank.

We would also like to know the name and grade of paper on which the prints were made.

All negatives and prints will be promptly returned, together with our comments and suggestions, which are offered free.

Address all communications,

"KODAKERY," CANADIAN KODAK CO., LIMITED,

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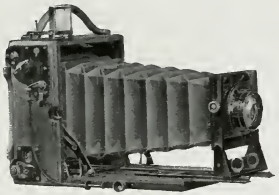

The Speed Graphic

A COMPACT hand camera that is equally adaptable to high speed work, landscapes, groups and portraits within the home.

The Graflex Focal-Plane Shutter built into the body of the camera, and the Anastigmat Lens equipment, is a combination of high efficiency.

For fast work the subject is centered with the direct vision Graphic Sight Finder. The full picture size focusing screen provides for careful arrangement of composition.

The Graphic plate holder supplied with the camera is interchangeable with the Premo Film Pack Adapter, which holds twelve exposures of film with one loading.

Provision is also made for altering the back of this camera to accept all Graflex attachments, including the Graflex Roll Film Holder.

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CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

The KODAK ANASTIGMATS

f.7.7 *f*.6.3 and *f*.4.5

War made necessary the manufacture of a super lens of microscopic definition for aerial photography. The organization that makes the Kodak Anastigmat found little difficulty in meeting these necessarily exacting requirements. The painstaking manufacture of the Kodak Anastigmat had taught the skilled workmen at the Kodak Lens Plant to expect exacting requirements and to fulfil them.

The Kodak Anastigmat lens is the result of intensive specializing—the best thought in a great organization, broad in its photographic knowledge and experience, unlimited in the resources at its command, centered on a specific problem until that problem was solved.

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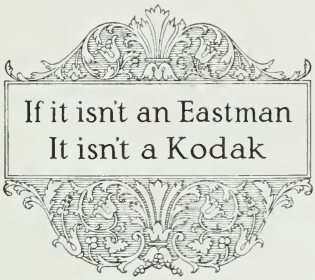
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

FEBRUARY 1920

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.


If it isn't an Eastman
It isn't a Kodak

A CHILEAN BEAUTY

Made with a 3A Kodak, by Antonio Cornish-Besa, Valparaiso

KODAKERY
A Journal for Amateur Photographers

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VOL. VII FEBRUARY, 1920 No. 4

THE NARROW TRAIL
FIG. 1

PICTURING A SNOWY WINTER

A FEW years ago the writer began making a photographic survey of the village and country in the vicinity of his home. These pictures have proven of interest to all who have examined them. This fact would not be worth mentioning were it not that the pictures which always command the closest attention and win the highest commendations are the ones that were made along the village streets, the country roads and in the fields, in the winter time when the ground was covered with snow.

Every one who uses a hand camera and wishes to really enjoy a snowy winter will meet with many pleasant surprises, both in the little journeys afield and in the pictures that can only be obtained on such outings.

Though photographing snow scenes, whether they are on city streets, along country roads or in the parks and fields, is just as easy as the picturing of summer landscapes, yet the question of what exposure to give is one that seems to puzzle many.

There is a widely held opinion that shorter exposures should be given for outdoor subjects when there is snow on the ground than when the ground is bare or covered with vegetation.

Whether the exposure should be shorter or not depends, not on the presence of snow, but on the subject and on the particular features or parts of the subject that are to be the objects of interest in the picture.

If the subject is a snow-covered landscape across which the sun is casting shadows, and the shadow lines on the snow are the features that we wish our picture to show prominently (Fig. 1), a shorter exposure will be needed than if the important feature on a snow-covered landscape is some dark-toned, nearby object (Fig. 2).

The pictorial interest in Fig. 1 obviously centers on the shadows that extend across the snow. Shadows that the sun casts on snow are never very dark, and the only way they can be made to show prominently in a negative is by exposing for the light tones on the snow instead of for such dark tones as there may be in other objects on the landscape. In other words, the best rendering of the subject can be obtained by exposing for the highlights instead of for the shadows.

The rule for outdoor work in summer is to expose for the dark tones and let the light ones take care of themselves, and when we reverse this rule and expose for the light ones instead of for the dark ones, in order to obtain the best rendering of shadows on snow, it is evident that, in such cases, the presence of snow does shorten the exposure.

If the camera has a rectilinear or anastigmat lens an exposure of 1-50 second with stop 16 will be ample for recording shadows on snow, and, if the camera is fitted with a single lens, which has no stop marked 16, a snapshot exposure, with the next smaller stop than the one that is used for summer landscape work, will do it.

Fig. 2 also shows a snow-covered landscape but the pictorial interest in this picture does not center on the snow. The points of greatest interest are the large tree trunk and the cabin a little farther down the road. The roadway, the fence and the shrubbery all lead us to these. We cannot keep our eyes away from them. When we look at the snow we find nothing of interest and the lines of the roadway through the snow lead us back to this cabin and this tree.

The objects of interest in this picture are dark in tone, the strong lights merely serving to make these dark objects conspicuous. In this

THE ROAD TO THE CABIN
Made with a 3A Kodak, by John Haberstroh
FIG. 2

case we must do exactly as we did in the case of Fig. 1, that is, expose for the objects of interest; but in Fig. 1 the interest centered in the light tones, while in Fig. 2 it centers in tones that are dark, and, in order to record the detail in dark tones we must give an ample exposure, which will usually be fully as long when there is snow on the ground as when the ground is bare or covered with vegetation.

Fig. 2 was photographed on a hazy day when no sun shadows were visible. For such a subject, under such light conditions, an exposure of 1-10 of a second with stop 16 is none too long with cameras that have rectilinear or anastigmat lenses. With cameras that have single lenses a time exposure, with the camera on a tripod, should be made, by opening the shutter and then closing it as quickly as possible, with the smallest stop in front of the lens.

The safest practice when making exposures, for all kinds of subjects, at all times of year and under all kinds of light conditions, is the one we have suggested—to expose for the principal objects of interest in the subject.

There are but two classes of snow scenes—those in which the light tones (on the snow) are the chief objects of interest and those in which the interest centers on the dark tones in objects on the landscape. In the former case we must, of course, expose for the snow and in the latter case for the dark-toned objects.

By keeping these facts in mind we will always know whether to use a 1-50 or a slower shutter speed.

When picturing snow drifts, or snow that has been piled up along paths and roadways, the most striking pictures can be obtained on a sunny day, by photographing the shadow side of the snow.

IN STE. MAXIME

Made with a 3A Kodak; K2 Filter; stop, 16; 1-10 sec. exposure

PORTRAITS IN THE HOME

In discussing the photographing of interiors (page 19) we direct attention to the light conditions that exist indoors in winter time. These light conditions are especially favorable for making portraits of the members of the family, in the home.

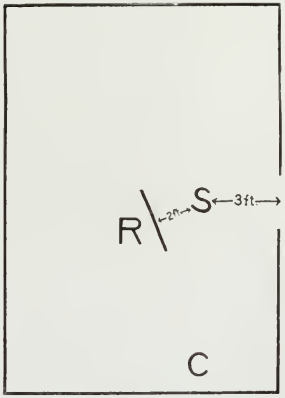
Portraits can be made with any hand camera, in any living room that has a window through which the unobstructed light from the sky can enter. It will not matter whether the window faces north, east, south or west, the important thing being, not which point of the compass the light comes from, but the way the light illuminates the subject.

The illumination of any object is determined by the position the object occupies in relation to the source of light and, in order to change the lighting, we must either change the position of the light source or the position of the object.

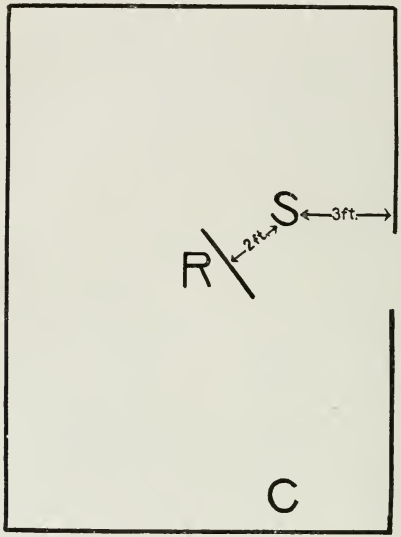
In making indoor portraits we can change the lighting of our subject by merely changing the position of the subject, and since we can select the position in which to place the subject we can easily control the illumination.

If the subject is placed opposite a window from which all shades have been removed (Diagram 1) in such a position that one side of the face will receive the direct light from the window, while the other side will receive only such light as is reflected from the walls and ceiling of the room, the lighting will usually lack "roundness," that is, it will fail to make what is round look round. This will always happen if too much of the available light comes through the lower part of the window. Such a lighting does not show the contour of the cheeks; it makes them look flat. In most cases such a lighting will also be contrasty, because walls and ceiling seldom reflect enough light to the shadow side of the face.

By placing a sheet of white cloth, in the position shown in the diagram, so that it will reflect light to the shadow side of the face we will reduce the contrast, and if we then place some cloth or paper over the lower one-third of the window, so the light will come downward and reach the subject at an angle of about 45 degrees, the lack of "roundness" in the lighting will be



S—Subject; C Camera; R—Reflector
DIAGRAM 1



S—Subject; C—Camera; R—Reflector
DIAGRAM 2

gotten rid of. The lighting effect thus obtained is shown in Fig. One.

Another pleasing lighting can be secured by moving the subject back, on a line parallel with the window (Diagram 2), until the light just reaches the highest part of the cheek on the shadow side of the face.

The lower part of the window is left blocked off as it was for the lighting of Fig. One. The reflector should be moved until it is as close to the subject as it was for Fig. One. The result of lighting a face in this manner is shown in Fig. Two.

By moving the camera to different positions various views can be made without changing the position of the subject.

The background is important in portrait work. It should never be so conspicuous as to draw attention from the portrait. Walls that are plainly papered make good backgrounds, and a plain cloth of any color is suitable.

For making head and shoulder portraits the Kodak Portrait

FIG. ONE
Made with a Premo and Kodak Portrait Attachment

Attachment should be used, as this permits placing the camera closer to the subject, so that larger images can be secured.

The largest stop is recommended for portrait work. The exposure to give cannot be definitely stated, as light conditions indoors are affected by the color of the walls and furnishings. But as the exposure needed will never be less than 1 second, and as the latitude of Eastman film will take care of considerable over-exposure, it is

FIG. TWO
Made with a 3A Kodak and Kodak Portrait Attachment

always best to give an exposure that is ample. Many charming portraits have been made by the light of a single window with exposures ranging from one to five seconds.

DEFECTS IN PRINTS

THEIR CAUSES AND PREVENTION

THE development of prints, like the development of negatives, is a chemical process, which proceeds from cause to effect strictly according to the laws that govern chemical action.

When we change the composition, or the strength, or the temperature of the developer which we use for making prints, we are introducing a cause which will produce an effect. If the change in the developer is slight the effect on the print will be slight, but if the change in the developer is pronounced the effect on the print will be very marked.

Practically all the defects we find in prints are due either to the use of an unsuitable developer or fixing bath or to faulty manipulation. Even should the composition of the developer or the fixing bath be exactly right the solution will be unsuitable for making prints if the temperature at which it is used is much too high or too low.

The temperature at which the developer is used should be about 70 degrees Fahrenheit. If the developer is much colder the prints will develop very slowly and they will have weak shadows. If the development is prolonged, in hopes

Result of placing a moist finger on print before development

An over-diluted developer produces irregular shaped spots or streaks

of obtaining deeper shadows, the print will become fogged.

Should the developer be much warmer than 70 degrees Fahrenheit the prints will develop too rapidly and brown or red stains are apt to appear.

A developer that has been once used should be discarded. If it is set aside and used again a few days later it will be very apt to produce brown or red stains on the prints.

Brown or red stains are also caused by a developer that has become too weak from overwork.

If the developer is too dilute, that is, if it contains too much water for the quantity of chemicals, irregular shaped, undeveloped spots or streaks will appear on the prints.

The temperature of the fixing bath should not be higher than 50 degrees Fahrenheit. It will not matter how much colder it is. If it is too warm yellowish or brownish stains will result.

The cause of purple stains, which later turn brown, has puzzled many because they seldom make their appearance until after the print has been washed and dried. These stains indicate uneven fixing, in consequence of which some of the silver salt is left in the print, and when this is exposed for some time to strong light it turns purple and then brown.

To make sure that prints are thoroughly fixed see that the fixing bath has free access to the entire surface of each print. Do not let one print remain on top of another in the fixing bath. This can be prevented, no matter how many prints there are in the bath, by handling the prints so that each one will be, in rotation, on the top of the pile.

Prints should be left in a fresh acid fixing bath not less than 15 minutes. Leaving them there for an hour will do no harm, but leaving the prints in the fixing bath all night is risky, as such long fixing in a *fresh* bath will bleach the prints.

Stains caused by taking print out of developer and allowing it to develop in the hand.
Compare with print on page 15

When those parts of a print that should be white are gray, it will be due, either to developing the print in an unsafe light, to an unsuitable developer, to too little bromide in the developer, or to paper that was too old. The date before which the paper should be used is stamped on the package.

No photographic paper, or other products that contain silver salts can remain in perfect condition indefinitely. It is only after the silver salts have been converted into metallic silver by the developer that the silver becomes permanent.

Grayish mottled markings will sometimes appear on time-expired paper, and also on fresh paper that was kept in a damp place or was exposed to illuminating gas, coal gas, or to the fumes of ammonia, turpentine and other strong smelling chemicals.

Round white spots on prints are caused by air bells that are allowed to form and remain on the prints while they are developing. These air bells are apt to form if the developer is *poured* on the prints, and when prints are developed face down. They will very seldom form if the print is immersed in the developer by sliding it under the surface of the solution *face up*. Prints should *always* be placed in the developer and the fixing bath face up.

Round or irregular shaped *dark* spots may be caused by air bells which form when prints are placed in the fixing bath face down. Should they appear on prints that are

Fog caused by examining a print in an unsafe light between developing and fixing

A little hypo in the developer changes the contrast, and considerable hypo in the developer degrades all the tones of a print

placed in the fixing bath face up it will be because the prints are not moved about for a few minutes, under the surface of the bath, immediately after they are immersed in the bath.

Blisters are apt to occur if prints are transferred from the developer to a rinsing water that is much colder than the fixing bath, and when water from the tap is allowed to fall directly on the prints. They may also occur when prints become creased or broken in the wash water and when prints are fixed in hypo to which no hardener or too little hardener has been added.

Always use the fixing bath that is recommended by the manufacturers of the paper. They recommend it because they know, from daily experience, that it is suitable for the paper.

A print should never be held up to the light and examined between developing and fixing. If the light is unsafe it will fog the print, and even if the light is perfectly safe the developer that remains in the print will oxidize and stain it. If the print is to be closely examined before it has been fully fixed this should be done *after* it has been kept moving under the surface of the bath for about half a minute.

One of the surest ways of staining a print is to take it out of the developer and let it develop in the hand. Oxidation of the developer is bound to result.

A moist finger placed on the surface of a print before it is developed will cause a finger print record, of the one that is guilty of doing this, to appear on the print.

The result of carrying hypo into the developer by the fingers that move the prints about in the fixing bath quickly becomes evident. A developer that is being contaminated with hypo will produce progressive changes in the tone of the

Correctly printed and correctly developed in suitable developer

prints and will, when it contains enough hypo, refuse to develop any but the dark tones. The Eastman Hard Rubber Print Paddle is made expressly for moving prints about in the hypo. This paddle makes it unnecessary to put the fingers in the bath.

Since the causes that produce the defects we have mentioned are known and can be produced at will by the expert worker, and since the way to avoid them is equally well known and has been pointed out in this article, every one who happens to make a print which has any of the defects we have mentioned can easily avoid duplicating it.

It is just as easy to form the habit of making prints by right as by wrong methods, and it is a vast deal more satisfactory.

A VEST POCKET KODAK CABLE RELEASE

THE little Vest Pocket Kodak is one of those sympathetic companions that always entertain but never annoy. Its regular abiding place is in the pocket of the business man, the traveler and those who love to be out of doors, and it also makes its home in milady's handbag.

Owing to this intimate association it makes pictures for its owners that other cameras do not get the chance to make.

So many users of the Vest Pocket Kodak sometimes wish to make exposures with a cable release that one has been especially made for it. This is not a fixture that is a part of the camera. It is an attachment that can be instantly fastened to it and as quickly removed.

VARIOUS MOODS O

NOW AND ICE

PORTED
FROM
REGIONS
BY
KODAK

A BYWAY IN MENTONE, FRANCE

Made with a 3A Kodak; stop, 22; ½ sec. exposure.

PICTURING INTERIORS IN WINTER

The light that comes directly from the sun is not as strong in winter as in summer, and yet the daylight in our living rooms is usually more brilliant on a sunny day in winter than on any day in summer. This is due to one or more of the following causes:

The sun is lower in the heavens in winter than in summer and its rays, in passing through a window, extend farther into the room, thus illuminating a larger area of the floor and walls, from which the light is reflected to other parts of the room.

If there are deciduous trees near a house the leaves on these trees will shut out a great deal of light from the sky which, when the trees are bare in winter, shines directly into the house.

When the ground is covered with snow it reflects light into rooms that receive very little reflected light from the ground in summer. These facts make it evident that many living rooms are more strongly and also more uniformly illuminated and can, in consequence, be more satisfactorily photographed by daylight in winter than in summer.

When we make a picture of an interior we usually want it to show the details in the furnishings. In order to record this detail we must do four things: secure a soft lighting, set the focus for the right distance, use a medium or small stop and give an ample exposure.

A soft indoor lighting is secured by diffusing or by reflecting the light that comes through the windows. Lace curtains will diffuse light to some extent but cheesecloth or muslin, drawn across the windows, will diffuse it more thoroughly.

Any white cloth or white paper will reflect a great deal of light, but for photographing interiors the reflector should be large. It should reach from about a foot above the floor to a point that is a trifle higher than the tallest piece of

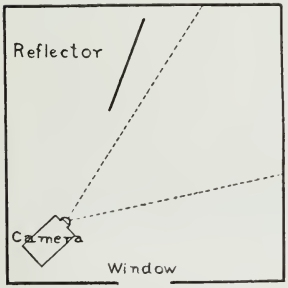


Diagram 1

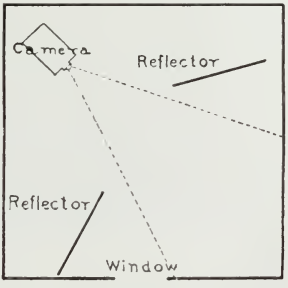


Diagram 2

INTERIOR PHOTOGRAPHED ACCORDING TO DIAGRAM 5

Made with a 3A Kodak; Bright Light Outdoors; 11 A. M., January; stop, 16; exposure, 25 seconds.

INTERIOR PHOTOGRAPHED ACCORDING TO DIAGRAM 4
Made with a 3A Kodak; Cloudy; 11 A.M., January; stop 16; exposure, 2 minutes.

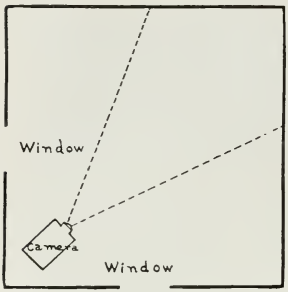


DIAGRAM 3

furniture. A full-size bed sheet is one of the best things to use. This can be lightly tacked to two sticks that are tied to chairs, or may be held by two attendants. The softest obtainable lighting can be secured by both diffusing and reflecting the light.

The point to focus on is one that is about ⅓ the distance from the nearest to the farthest objects that are to be sharply rendered. To illustrate: if the nearest object is 10 feet from the lens and the farthest object (which will be the wall) is 16 feet from the lens the distance between these objects will be 6 feet. One-third of 6 feet is 2 feet. The point to focus on will therefore be 2 feet beyond the nearest object (10 feet + 2 feet) or 12 feet from the lens.

The terms "medium stop" and "small stop" are commonly used by photographers, but they have very indefinite meanings. By a medium stop we mean stops U.S. 8 or *f*.11 and stop 16. and by a small stop we mean any stop that is smaller (of a higher number) than 16.

In photographing interiors we work at short range, and a smaller stop must be used to get sharp images of objects that are at different distances from the lens in short range than in long range work. As the reason for this cannot be briefly stated it will be explained in a future number, under the title "Depth of Focus."

An ample exposure is one that is long enough for recording the detail we can see in the objects photographed, and since a large stop cannot be used for interior work we must always give a time exposure. This means that the camera must be placed on a tripod or on some other support that will hold it perfectly rigid while the film is being exposed. If the camera is held in the hands while a time exposure is being made the whole picture will be blurred.

If a corner of a room that has only one window is to be photographed it will usually be necessary to use a reflector, as is suggested by Diagram 1, for getting sufficient light to that side of the furniture which does not receive direct light from the window. Either of the corners, or the side of the room opposite a single window, can easily be photographed by placing the reflector so it will throw light where it is needed, but when there is only one window, and we wish to photograph one of the corners that is on the same side of the room as the window, we are confronted with a problem. We cannot get direct light into these corners, so we must make the picture by reflected light. The way to do this is suggested by Diagram 2.

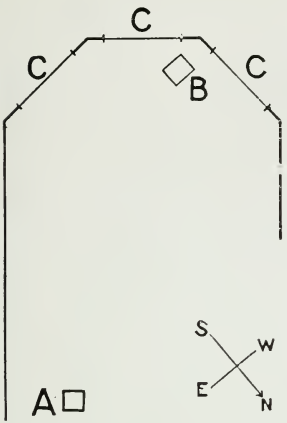


DIAGRAM 4
Showing arrangement of room in which picture on page 21 was made
A—Kodak; B—Chair; C—French Doors

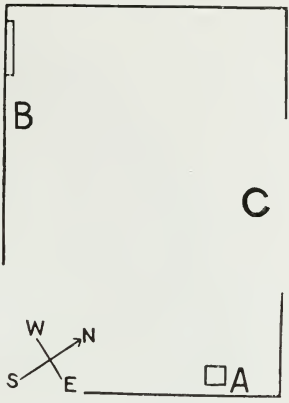


DIAGRAM 5
Showing arrangement of room in which picture on page 21 was made
A—Kodak; B—Table; C—Open Colonial Door

A room that has windows on two sides (Diagram 3) is comparatively easy to photograph, as the furnishings of the room will receive light from two directions.

The writer has photographed many interiors, both with and without the aid of reflectors, and has found that the diffusing screen of cheesecloth or muslin, while not really necessary, is a great help in securing a uniform illumination, whether a reflector is used or not. A diffusing screen drawn across the windows scatters the light, which is then reflected from walls, floor and ceiling. The screen makes it necessary to give a longer exposure but the results make the extra time and trouble well worth while. A diffusing screen should always be placed over windows through which the sun is shining at the time the picture is being made, or the lighting will be very contrasty. By filtering sunlight through a screen we obtain a strong light which does not cast sharply defined shadows.

Diagrams 1, 2 and 3 offer general suggestions for photographing interiors. Diagrams 4 and 5 give specific information regarding the condition under which the pictures on pages 20 and 21 were made.

When photographing interiors with cameras that have double lenses (these have a lens in front of the shutter) use stop 16, and with single lens cameras (these do

A SCOTCH LADDIE
Made with a Kodak

not have a lens in front of the shutter) use the second stop and give the exposures recommended in the following table when no diffusing screen is used. These exposures should be twice as long if the light is filtered through a white muslin or cheesecloth screen. The exposures should be timed with a watch and not guessed at. A minute seems very short when we are busy, but quite long when we note it on the second hand of a watch.

EXPOSURE TABLE FOR PHOTOGRAPHING INTERIORS

For rooms that receive the direct light from the sky. The exposures to be made not earlier than three hours after sunrise or later than three hours before sunset. In earlier morning or later afternoon hours longer exposures must be given.

White walls and more than one window:

Bright sun outside, 4 seconds.
Hazy sun, 10 seconds.
Cloudy bright, 20 seconds.
Cloudy dull, 40 seconds.

White walls and only one window:

Bright sun outside, 6 seconds.
Hazy sun, 15 seconds.
Cloudy bright, 30 seconds.
Cloudy dull, 60 seconds.

Medium colored walls and hangings and more than one window:

Bright sun outside, 8 seconds.
Hazy sun, 20 seconds.
Cloudy bright, 40 seconds.
Cloudy dull, 80 seconds.

Medium colored walls and hangings and only one window:

Bright sun outside, 12 seconds.
Hazy sun, 30 seconds.
Cloudy bright, 60 seconds.
Cloudy dull, 120 seconds.

Dark colored walls and hangings and more than one window:

Bright sun outside, 20 seconds.
Hazy sun, 40 seconds.
Cloudy bright, 80 seconds.
Cloudy dull, 2 minutes, 40 seconds.

Dark colored walls and hangings and only one window:

Bright sun outside, 40 seconds.
Hazy sun, 80 seconds.
Cloudy bright, 2 minutes, 40 seconds.
Cloudy dull, 5 minutes, 20 seconds.

AMERICAN SOLDIERS AT NICE, FRANCE
Made with a 3A Kodak; stop, 22; 1-25 sec. exposure

STONE CHINESE PAGODA, 100 FEET HIGH
Made with a Kodak

WHEN IN NEED OF ASSISTANCE

"Your valued reply received. You have helped me so much I am selfish enough to ask for more help."

"I wish to assure you that your prompt and accurate information on the subject was very much appreciated."

"After receiving such courteous replies to former questions I am again encouraged to take advantage of your kindness in giving advice free of charge."

THESE extracts from three of the multitude of letters we have received from amateur photographers, suggest the value they attach to the assistance we render them by correspondence.

Should you encounter any problems in your photographic work that you cannot readily solve send them to us and we will gladly help you, as we have helped others.

If you have negatives from which you cannot obtain the kind of prints your desire send us both the negatives and the prints, and we will tell you where the trouble lies.

By examining the negatives we can determine whether they were rightly or wrongly exposed and whether they were rightly or wrongly developed, and by comparing the prints with the negatives we can tell whether the prints were rightly or wrongly made.

Give us all the data pertaining to negatives and prints that you may possess, such, for instance, as the month, the time of day, the light conditions when the films were exposed, the stop and shutter speed used, whether the negatives were developed in the tank or in the tray, and the kind of developer with which the films were developed.

We would also like to know the name and the grade of paper on which the prints were made. Both negatives and prints will be promptly returned, together with our comments and suggestions, which are offered free of charge.

Address all Communications,

KODAKERY, CANADIAN KODAK CO., LIMITED,

TORONTO, CANADA.

The Premo Adapter

CONVERTS your plate camera into a daylight loading film camera—presenting all the advantages of film quality and convenience.

Open the hinged back, drop in a Premo Film Pack containing twelve exposures, and slip the Premo Adapter into the camera—just as you use an ordinary plate holder.

The dark slide provides for removal of the Adapter when it is desirable to accurately rearrange the composition between exposures.

Another advantage is the provision for removing one or more films from the pack immediately after exposure.

Ask for the 48-page Premo Catalogue
free at your dealer's or by mail

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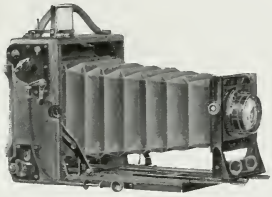

The Speed Graphic

A COMPACT hand camera that is equally adaptable to high speed work, landscapes, groups and portraits within the home.

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MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

MARCH 1920

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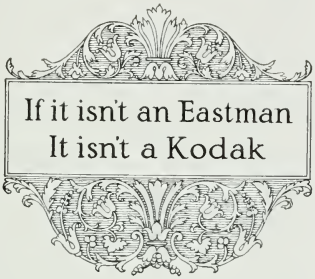
TORONTO, CANADA.


If it isn't an Eastman
It isn't a Kodak

THE LAST WHITE OF WINTER
Made with a 3A Kodak

KODAKERY
A Journal for Amateur Photographers

Published Monthly—Yearly Subscription, 50 Cents; Single Copies, 5 Cents.

Vol. VII MARCH, 1920 No. 5

WHILE THE SELF-TIMER DID ITS WORK
Made with a 3A Kodak

MY SILENT PARTNER

BY ARTHUR O. FRIEL
Illustrated by the Author

My Kodak, my pack, and my tin cup—these three were the basic essentials of a recent tramping trip of 150 miles through the rugged Catskills. And of the three, the Kodak proved of most enduring worth.

The cup lifted many a needed drink from tiny springs or rocky brooks. The sturdy waterproof packsack toted eighteen pounds of necessities and kept them dry during torrential mountain rains. Yet each of these, though vitally necessary to a lone trail-hitter, was at best merely a piece of equipment: a blind, insensate thing which ministered only to temporary physical

WITH "FULL EQUIPMENT"
Made with a 3A Kodak

needs. It was the 3A Special, snuggling under my right arm where it was out of the way but instantly available, that was my real partner on broad highway and in pathless wilderness—a silent partner who leaped forth when wanted and snatched clear records which in later days would revive fading Memory.

For Memory, you know, does fade. Memory blurs and becomes foggy. In a way it is like a photographic film. New things constantly stamp their image on it, and each new image makes its predecessors less clear. In time the old impression becomes nearly obliterated. Relying on Memory alone, we find that after the lapse of a few weeks or months we recall things only vaguely, in a broad, general way.

But open the album and show Memory a picture made at that bygone time—then the fog of recent happenings vanishes like wind-blown smoke. Memory becomes alive, articulate. It nudges you in the ribs and chortles:

"Oh sure! Diamond Notch! Remember your noonday lunch of chocolate down beside that mossy-bouldered brook? And the gray mists that crawled along the mountainsides as you plugged on up through the pass? And the wonderful vista when you turned at the top and looked back? And the ugly copperhead you nearly stepped on? And the fat man you met at West Kill Creek who had come for miles to fish, and who w s swearing like a pirate because he had just found that he forgot to bring his bait? Ha, ha, ha!"

ON A DANGEROUS FOOTHOLD
Made with a 3A Kodak

And so it goes. And so, being a Kodaker of some fifteen years' standing, I toted everything with me, my old pal Three-A and his assistants—telescopic tripod, self-timer, color filter for landscapes, portrait lens for close work on small objects—and, of course, plenty of film. I waded leg-deep into foaming creeks, climbed steep trails obstructed by boulders and windfalls, fought through miles of thick bush where no trails ran, crawled out on dizzy ledges where one slip meant death or broken bones far below—all for what? To "shoot a picture." And ten or twenty years hence those pictures will bring that trip back to me as clearly as they do to-day.

Yet roaring waterfalls and picturesque crags and far-flung mountain chains do not make up the sum total of the records one desires of such a hike. Besides these, I wanted photographs which would bring back to me the incidents of my long trail—the things I did as well as those I saw. And so from time to time I photographed myself also.

Pausing to rest and smoke, I would set old Three-A on his tripod, adjust the self-timer, drape myself comfortably on a roadside fence, and let the camera catch me in the act. To be sure, it might catch me with my face out of shape because of a mouthful of smoke, but what of that? A face like mine would never take a prize in a beauty-show, anyway. Toiling up a tiny path among the ledges, climbing over a tangle of uprooted trees, or tramping a swamp trail through barren lands, I would stop long enough to give my silent partner a record of that too. Even out on the face of a precipice I gave the self-timer its chance to depict me balancing on a narrow and dangerous foothold. This was a fool's stunt, and I do not advise my brother Kodakers to imitate it; but it would take a sizable sum to buy that film from me now.

That particular film, by the way, captured one of those interesting freaks which infrequently come to the Kodaker. Weeks later, when the mountains were far behind me and I was leisurely examining my prints, I was astonished by the discovery that my own face was not the only one on the side of that cliff. Directly above me was a queer, wizened head in the stone, peering down at me with an expression of amazed hostility which seemed to say: "Who are you that come climbing into this wild place to disturb my solitude? Get out before I drop something on you!"

At the time I never suspected that this grotesque little Old Man of the Mountains was watching me. But the camera saw him, and the self-timer enabled it to seize an image of that odd face to surprise me later on.

I found that little shutter-tripper invaluable, for without its aid my pictorial history of the trip would have been incomplete. It is hardly necessary to add that on such a rambling trip as mine, which led me into the mountains of three counties, the autographic feature which permits the hiker to "write it on the film" is virtually indispensable.

So now, with the beauty of forest and stream revived in the deep

"AND LET THE CAMERA CATCH ME IN THE ACT"
Made with a 3A Kodak

rich tones of Velvet Velox, the cliffs and canyons printed out in their natural dark gray, and my own khaki clothing portrayed by re-development into sepia tones. I have a vivid record of that care-free expedition through the southern country.

And when the grind of brain-work palls on me I have only to open the album, and presto! I am no longer a white-collared city man, but a flannel-shirted, heavy-booted hobo of the high hills, free to rove wherever fancy lures. This I owe to my silent partner Three-A. And something tells me that before long we two will again be hitting the trail together into some new place.

AN ATTENTIVE GROUP
Made with a Kodak

A FEBRUARY NIGHT

Made with a 2C Kodak, by B. O. Wilson; stop f.7.7; 45 minutes.

BY MOONLIGHT

SINCE moonlight is reflected sunlight it might seem that we should be able to make pictures by moonlight that would look exactly like those made by daylight. We doubtless could do so if the moonlight was bright enough for snapshot work, or for short time exposures, but it never is, the light of the full moon, on a

clear night, being only 1/500,000 as bright, while its actinic brilliancy is only about 1/600,000 as strong as that of sunlight on a clear day.

What we can do, however, is to make pictures by moonlight that will resemble those made in the daytime. This resemblance is sometimes so close that none but a careful observer will be apt to notice anything in the pictures that suggests they were not made during the hours of daylight.

The shadows that are cast by moonlight never show sharply-defined edges in a picture, because the revolution of the earth moves the shadow lines sufficiently to blend their edges during the ten minutes or longer exposure that is needed for making a fully timed moonlight picture.

But it often happens that these shadows are not prominent enough to attract attention. In looking at Mr. Wilson's picture, on page 9, very few would examine the shadows, nor would the lack of sharpness in the images of the tree tops necessarily suggest anything more than that the wind was blowing at the time the picture was made. Blurred images can be obtained from this cause in the daytime, if a time exposure is made with the smallest stop in the lens.

Those who desire to obtain daylight effects in real moonlight pictures can easily do so by giving 600,000 times as long exposures by the light of the full moon as would be needed for the same subject in bright sunshine.

The simplest way to calculate the exposure is to give 100 minutes by moonlight for every 1/100 of a second that would be given by sunlight.

If the exposure, by sunlight, for a landscape that has a prominent object in the foreground, should be 1/25 of a second with stop 16, which is the equivalent of 1/100 of a second with stop 4 (*f*.8), then the exposure by the light of the full moon would be 100 minutes with stop 4. For a landscape that has no prominent dark-toned objects in the foreground an exposure of 50 minutes with stop 4 will be ample.

This method of calculating the exposure provides for a fully-timed negative which will make a picture that looks like one made by daylight. If a picture that suggests night instead of day is desired the exposure should be considerably less—not more than ¼ as long. Many splendid night effects have been secured by the light of the full moon with exposures ranging anywhere from 10 to 25 minutes, when stop 4 was used.

With single lens, fixed focus cameras use the largest stop and give twice as long exposures as those we have stated.

The exposures recommended apply only to nights when the sky is clear and the moon is full. The half-moon does not give even half as much light as the full moon.

CHANGE OF ADDRESS.

Should you change your address, kindly notify us promptly, giving both your old and new addresses and also the date when your subscription expires.

If you cannot be sure when your

FRENCH COAST NEAR BREST
Made with 3A Kodak; f.22; 1-25 second exposure

subscription expires and do not know the month when you sent application or subscription form, it will help us if you will quote the letter which appears at the lower left hand side of the address on the envelope in which KODAKERY comes to you.

FRENCH COAST NEAR MONTE CARLO
Made with 3A Kodak; stop 32; 1-10 second exposure

Fig. 1
Stop, U. S. 128; 3 sec.; K-2 Filter

THE SHORE ICE

Among the advantages that photography possesses over all other methods of pictorial representation are the accuracy and the rapidity with which a photographic record can be obtained, and it is because of these advantages that millions of photographs are made of subjects which could not be accurately pictured in any other way.

The writer's experience indicates that, interesting as such pictures are at the time they are made, they are of still greater interest in after years, when they reveal more than memory has retained, and the autographic record on each film tells us what we usually have forgotten—the date when the picture was made.

The deep snowdrifts and the high water which followed when the thaw came, the ice "volcanoes," built up by waves forcing the water through holes in the ice near the shore line of large lakes, and the fields of ice that float about after the ice sheet has broken up are all characteristic winter phenomena that are well worth recording.

The majority of the subjects that we photograph present no problem in the securing of contrast, because they are either lighter or darker than the background against which they are

FIG. 2
Stop, U. S. 32; 1-25 sec.; hazy sun, near midday

outlined, but the picturing of ice against a sky background does sometimes present a problem in recording contrast between the ice and the sky.

When we photograph ice formations on lakes we are often compelled to work with the lens pointing across the water, and if the lake is so large that its farther shore cannot be seen we will have the horizon and the sky for a background.

But even when this happens there is only one condition under which we cannot make a photograph that will show distinct contrast between the ice and the background, and this condition is only present when we cannot clearly see any contrast in examining the subject, as, for instance, when white clouds form the background for a mass of white ice.

When the sky is blue all that is necessary for making the sky photograph darker than the ice is to use a color filter. When the sky is gray, or when, as often happens in winter, the sky near the horizon is a blue-black, no filter need be used.

Fig. 1, of our illustrations, represents a fully built up ice "volcano" with its summit outlined against a pale blue sky. The data under the picture show that a color filter was used for making the sky photograph darker than the side of the ice on which faint sunshine rested. The smallest lens stop was used for securing the greatest possible depth of focus, as this subject was photographed at short range with the camera only three feet above the level of the ice floor.

For Fig. 2 no filter was used because the water behind the ice appeared darker than the ice.

FIG. 3
Stop, U. S. 32; 1-25 sec.; hazy sun, near midday

The floating ice field shown in Fig. 3 extended to the horizon and as the sky at the horizon was gray, there was plenty of visual contrast between the ice and the background, so no filter was needed.

In photographing any outdoor subject at any time of year, we should always remember that white will photograph white whether a color filter is used or not, and that, unless we under-expose the film, the blue of the sky will also photograph white in ordinary landscape work when no filter is used, but with a Kodak Color Filter, or with a Wratten K 2 Filter, blue will photograph gray. It is especially important to consider these facts when we wish to contrast white against blue.

THE PARTHENON AT CRETE
Made with a Folding Kodak

IN GARFIELD PARK, CHICAGO

Made with a 3A Special Kodak, by Harvey C. Pendery, cloudy day; f.11; ½ sec. exposure

MEMO

RECALL
BY
THE
KODA
ALBUM

LENSES OF NORMAL AND ABNORMAL FOCAL LENGTHS

THE photographic lens makes an image of what it sees, but the size of the image it makes depends on its focal length and the distance it is placed from the subject.

The greater the focal length of the lens the larger will be the image and, the nearer the lens is to the subject the larger will be the image it makes of the subject. Since this is a law of optics, it necessarily follows that when a long focus and a short focus lens are placed at the same distance from an object the former will make a larger image of it than the latter.

Should a 10-inch lens (one that has a focal length of 10 inches) make a 2-inch image of an object that is 50 feet distant, a 5-inch lens would make a 1-inch image, and a 20-inch lens would make a 4-inch image of the same object at the same distance from the object.

Should, however, the 10-inch lens be placed at a distance of 50 feet, the 5-inch lens at 25 feet and the 20-inch lens at 100 feet from the object, all these lenses would make the same size images of it; but if there were other objects, at different distances from the lenses, within their field of view, these lenses would not make the same size images of these other objects. This is shown by our illustrations.

It is because of this fact that the short focus lens has often been accused of dwarfing the distance. If this wording of the charge is correct then it is equally correct to say that the long focus lens magnifies the distance.

Both charges can be proven by using these lenses in a way that they often are, but should not be used, and for a kind of work for

FIG. 1—*Made with a lens of too short focal length*

FIG. 2—*Made with a lens of too long focal length*

which only lenses of normal focal lengths are adapted. The results that are obtained when this is done may prove surprising to those who have never compared the work of long focus and short focus lenses with the work of lenses of normal focal lengths.

In using the terms "long focus," "short focus" and "normal focus," in this article, we are using them in a relative sense, the relation being that of focal length to size of picture. When these terms are used relatively they may be defined, as follows:

FIG. 3—*Made with a lens of normal focal length*

A long focus lens has a focal length that is much greater than the diagonal of the picture it is required to make. A short focus lens has a focal length that is much less than the diagonal of the picture, and, a lens of normal focus has a focal length that is slightly greater than the diagonal of the picture.

To demonstrate what long and short focus lenses will do when they are used for the work for which a lens of normal focus is best adapted, and used in the same way as the normal focus lens would be, we selected an ornamental lamp post beyond which were some buildings, and made pictures of this subject with a short focus, a long focus and a normal focus lens. The lenses were placed at such distances from the subject as were necessary for obtaining the same size image of the lamp post. All the pictures were $3\frac{1}{4} \times 5\frac{1}{2}$ — the post card size.

In photographing this subject each lens projected images of exactly what it saw.

To the short focus lens (Fig. 1) the buildings appeared to be a long distance from the lamp post. To the long focus lens (Fig. 2) the buildings appeared to be very close to the lamp post, while to the normal focus lens (Fig. 3) the buildings appeared nearer to the lamp post than is shown in Fig. 1, but farther from it than is shown in Fig. 2.

Since all these lenses agree on the size of the lamp post, but disagree about the size of every other object, and also hold very different ideas about distances, it may seem incredible that all of them have told the truth. But they have all told it, as they saw it. The trouble is that the short focus lens is short-sighted, the long focus one far-sighted, while only the lens of normal focus may be considered as having normal vision.

Are such long focus and such short focus lenses therefore to be avoided? For regular work, yes; but for special work they are very useful.

Long focus lenses are especially adapted for photographing far distant subjects, when no *nearby* objects are to be included within the picture, and short focus lenses are especially useful in photographing subjects which are so located that it is not possible to get them within range of the camera from a normal distance. This happens most frequently in a small room.

The most useful lens—the one with which all but the wide angle work of the short focus can be done—is the lens of normal focus. This lens is eminently adapted for all the work that the long focus can do. While it cannot make the same size images as the long focus makes, from the same point of view, it always does give exactly the same perspective as the long focus gives, from the same point of view. By making an enlargement from the normal focus negative the same perspective and the same sizes of images are obtained as were made with the long focus, together with a larger area of the subject than the long focus was able to picture.

Furthermore, using a lens of normal focus permits the photographer

to go afield with a compact hand camera, instead of with the bulky, extremely long bellows camera that the long focus lens needs.

These are the reasons why lenses of normal focal length are fitted to the Kodak, Premo, Brownie, Graflex and Graphic cameras.

FRIENDLY

Made with a No. 3 Kodak

FIG. 1

CATCHING THE SNOWFLAKES

AMONG the thousands of photographs that have been sent to KODAKERY for criticism were many pictures of snow scenes, but in only one of these was there an actual photographic record of falling snowflakes.

It often happens, when a snowstorm comes while the temperature is around the freezing point, that the snowflakes are large and fleecy looking, and it is these large flakes that can be easily photographed while they are falling.

Since snowflakes are white, therefore, they will not show plainly in a picture unless they are photographed in front of a dark background. This background should not be farther than 50 or 75 feet from the camera. If it is much farther away there will be so many snowflakes between the camera and the background that the picture will show too many of them overlapping each other, as it were. What is needed is a distinct record of only a few of the multitudes of snowflakes that are falling.

By using the largest stop on a rectilinear or anastigmat lens, when a $2\frac{1}{2} \times 4\frac{1}{4}$ or larger folding focusing camera is used, and focusing on a point that is 25 feet or less from the camera the only snowflakes that will be in sharp focus will be those that are within a distance of a few feet from the point on which the lens is focused. All the other snowflakes will be so much out of focus that, owing to their small size and movement, they will make little or no perceptible impression on the film during a $\frac{1}{10}$ second exposure, while a photographic record will often be obtained, when the light is good, of those snowflakes that are within the field of sharp focus, provided they *are* outlined against a dark background.

FIG. 2

Made with No. 3A Folding Kodak, by O. F. Bearns. 1-50 sec.; stop, 4; at 4 P.M.; in strong light.

Fig. 1 of our illustration was made during a heavy snowstorm. The reason why no falling snowflakes were recorded is that the focus was set for 100 feet and a $\frac{1}{10}$ second exposure given through stop *f*.8. The snowflakes were small and the exposure was so long that enough light reached the film from every point in the field of view for recording the images of the stationary objects after the snowflakes had passed those points.

In Fig. 2 we find plenty of snowflake images within the plane of sharp focus, outlined against the dark parts of the background, but none are shown outlined against the sky because we cannot obtain a photographic image of a snowflake against a background of other snowflakes. None of the falling flakes are sharply rendered. The wind was blowing and the snowflakes were flying too fast for a $\frac{1}{50}$ second exposure to arrest movement.

In undertaking to photograph falling snowflakes with fixed focus cameras that have single lenses and but one shutter speed (such as the box type of Brownies and Premos) the largest stop should be used and a snapshot made, between the hours of 10 and 3, when the light is good, at a distance of not more than twelve feet from the dark object against which the snowflakes are to be outlined.

Snowflakes are comparatively small objects and in order to obtain fair sized images of them they must be photographed at short range.

AN EASY METHOD OF EMBOSSING PRINTS

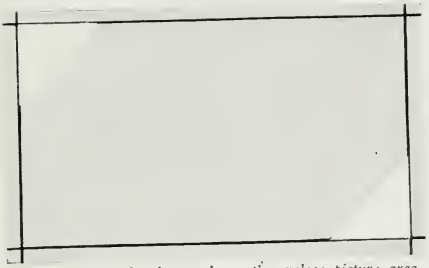
In order to have a finished appearance a picture must be surrounded by a border. This may be a frame, a cardboard mount, the leaf of an album, or merely the plain unprinted margins that are obtained when a print is made through a mask.

Plain margins are always pleasing. They can be made as wide or as narrow as desired, and by using the right size and shape of mask pictures can be printed from the whole negative or from any part of it.

The Eastman and the Kodaloid Printing Masks are made in various masking sizes for 3¼ x 4¼ and larger negatives. With the Kodak Auto-Mask Printing Frame practically any size of mask can be made for any negative that is not larger than 3¼ x 5½.

If the margins are made ¾ of an inch or more in width the appearance of the print can be further improved by embossing. The method of doing this is one that any amateur can successfully employ. All that is needed is a sheet of glass, a piece of thin cardboard and an implement that has a rounded end, like the handle of a tooth brush or a silver table knife, to serve as the embossing tool.

Should we wish to emboss an area that is ⅛-inch larger on all sides than the picture we must first rule the exact size and shape of the picture area on a sheet of thin



Black lines on embossing card exactly enclose picture area. Space on card outside black lines determines width of space between picture area and embossing lines

Unshaded part around picture represents depression space in paper

cardboard, and then, after the card is trimmed so that the ruled lines will be ⅛ of an inch from each of the four sides, an opening should be cut near two or more of the corners of the card, along the ruled lines, as shown in our illustration.

The card is then placed on a sheet of glass and the print laid over it, face down, and adjusted so that the marginal lines of the picture will show through the openings in the card, exactly on a line with the lines that are ruled on the card. This adjustment can easily be made by holding the glass up to the light and looking through the print. If the print is on double weight paper the adjustment must be made in front of a very strong light.

The depth of the embossing is determined by the thickness of the embossing card. A thicker card may be used for prints on single weight than for prints on double weight paper, but the most pleasing effect is usually obtained with a card that is only a little thicker than a postal card.

The embossing is done by running the rounded end of the embossing tool along the back of the print and pressing down those parts of the paper that are just outside the edges of the piece of cardboard.

This method is very simple and accurate and with a little practice anyone can do the work rapidly.

IN AN ENGLISH CHURCHYARD
Made with a 2C Folding Brownie

WHEN IN NEED OF ASSISTANCE

"Your valued reply received. You have helped me so much I am selfish enough to ask for more help."

"I wish to assure you that your prompt and accurate information on the subject was very much appreciated."

"After receiving such courteous replies to former questions I am again encouraged to take advantage of your kindness in giving advice free of charge."

THESE extracts from three of the multitude of letters we have received from amateur photographers, suggest the value they attach to the assistance we render them by correspondence.

Should you encounter any problems in your photographic work that you cannot readily solve send them to us and we will gladly help you, as we have helped others.

If you have negatives from which you cannot obtain the kind of prints you desire send us both the negatives and the prints, and we will tell you where the trouble lies.

By examining the negatives we can determine whether they were rightly or wrongly exposed and whether they were rightly or wrongly developed, and by comparing the prints with the negatives we can tell whether the prints were rightly or wrongly made.

Give us all the data pertaining to negatives and prints that you may possess, such, for instance, as the month, the time of day, the light conditions when the films were exposed, the stop and shutter speed used, whether the negatives were developed in the tank or in the tray, and the kind of developer with which the films were developed.

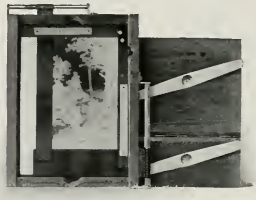
We would also like to know the name and the grade of paper on which the prints were made. Both negatives and prints will be promptly returned, together with our comments and suggestions, which are offered free of charge.

Address all Communications,

KODAKERY, CANADIAN KODAK CO., LIMITED,

TORONTO, CANADA

PRINTING FRAMES

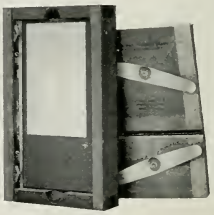


Kodak Auto-Mask Printing Frame

Price, $1.50

THE mask of thin metal built in the frame itself, may be instantly adjusted to fit any of the amateur size negatives. The correct relation between negative and paper once fixed may be maintained for any number of prints without readjustment.

Maskit Printing Frame



THE Maskit Printing Frame successfully overcomes the difficulty of negative and mask slipping on the glass and expedites the making of prints with uniform white margins.

THE PRICE

Kodak Maskit, 3¼ x 4¼, opens two-thirds . .	$0.55
Kodak Maskit, 3¼ x 5½, opens two-thirds . .	.60
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Price, $3.50 up

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Kodak Amateur Printer

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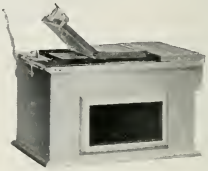

For Printing

THE combination of the Kodak Film Tank and the Kodak Amateur Printer makes every amateur his own finishing department.

CANADIAN KODAK CO., LIMITED

TORONTO, CANADA

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The KODAK ANASTIGMATS

f.7.7 *f*.6.3 and *f*.4.5

The *esprit de corps* of the Kodak Lens factory where Kodak Anastigmats are fashioned, logically results from the common pride of skilled workmen in exacting craftsmanship.

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APRIL 1920

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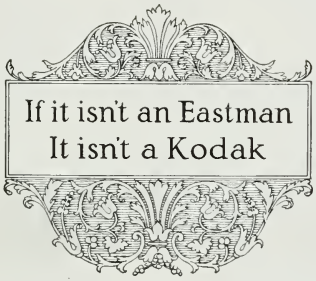
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A VERY EXCLUSIVE TEA PARTY

(*See "Making a Kodak Biography" on page 15*)

KODAKERY
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Vol. VII APRIL, 1920 No. 6

Fig. 1

THE CLOUDS THAT ARE IN THE NEGATIVE

The majority of outdoor pictures are made with snapshot exposures, and many of these pictures are printed from negatives which record clouds that do not show at all, or show but faintly, in the prints that are ordinarily made from them.

Clouds always add to the beauty of a landscape picture, and if they can be plainly seen in the negative they can always be recorded in the print. The easiest way to do this is by printing through the sky part of the negative longer than through the landscape part.

The negative is placed in an ordinary printing frame and exposed

FIG. 2

to the light for the length of time needed for correctly recording the landscape on the printing paper, then the landscape part is shaded. by holding a piece of cardboard two or three inches in front of the negative, and the sky part of the negative printed as much longer as is necessary for recording the clouds.

The shadow that the card casts on the negative must be watched during the printing, and this shadow must not be allowed to remain stationary, or its edge will show in the print. The edge of the shadow must be kept moving up and down, across that part of the sky which is just above the landscape. If it moves across the skyline the most distant part of the landscape will be rendered darker than it should be.

Our illustrations show the results that this method produces. The subject was photographed with a Graflex, at 3 P.M., in November. A Wratten K2 Filter was used and an exposure of 1-10 second, with stop *f*.4.5 was given. All the prints were made on the same grade of paper.

Fig. 1 shows the result of printing the entire negative for the same length of time. Figs. 2 and 3 show what was obtained by printing the sky longer than the foreground.

As a picture Fig. 1 is disappointing. It does not show all that the negative contains, and the foreground looks too dark for the sky. This is due to the fact that the landscape part of the picture was over-printed, a thing that is often done with negatives of this kind, in hopes of making the sky show to better advantage. This is a practice which should always be avoided.

FIG. 3

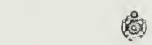
In Fig. 2 the landscape is lighter and the sky darker than in Fig. 1 and the tones of the entire subject are in balance.

In Fig. 3 the tones of the sky likewise harmonize with the tones of the landscape, though both are printed darker than in Fig. 2.

Keeping the tones of the sky in harmony with the tones of the landscape is very important. When this is not done the pictorial quality of the picture is impaired. Imagine the effect of placing the sky of Fig. 3 above the landscape of Fig. 2.

When the line where the sky and landscape meet is nearly straight (as in our illustrations) the shading can be done with any straight-edged card, but if the skyline is quite irregular the edge of the card that is used for shading should be cut to approximate the shape of the skyline. A good way to cut a card for an irregular sky line is to place the negative on a sheet of glass, with a piece of translucent paper over it, then hold it up to the light and trace the skyline on the paper. When the paper is cut along the traced line it will furnish the pattern for the card.

This method of printing is a simple "stunt" that anyone can make use of, and it is especially recommended when the best obtainable prints are wanted from negatives in which the density of the sky is relatively too great for the density of the landscape.



Autograph the date on the film —at the time.

Made with a 3A Kodak and Kodak Portrait Attachment
Stop, 4; exposure, 8 seconds; 2 P.M.,
March; cloudy-bright

BAY-WINDOW PORTRAITS

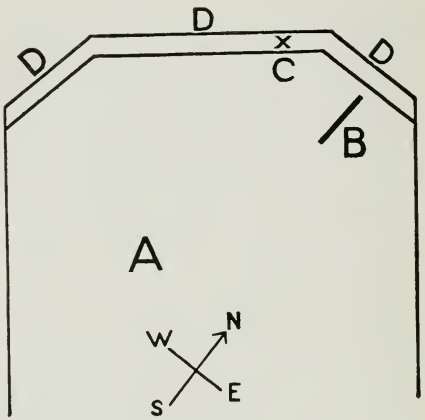
IN the February, 1919, KODAKERY we explained how portraits can be made with hand cameras in ordinary living rooms, by placing the subject in such a position near a window that the light from the window will illuminate the face, without having the window show in the picture.

One of our readers has sent us some portraits which were made in a bay-window, directly in front of

Made with a 3A Kodak. Stop, 4; exposure, 10 seconds; 2 P.M.; March; cloudy-bright

one of the windows, which served as the background for the subject. The method by which these pictures were made is one that can be employed in many homes.

While well-lighted portraits that have window backgrounds cannot be made in a room that has one window only, they can easily be made in a room that has window-



A Kodak; B—Reflector; C—Subject on Window Seat; D—Windows

Diagram showing arrangement of room in which pictures on pages 6 and 7 were made

on only one of its sides, if these happen to be bay windows.

If the bay, or recess, that projects outward from the room, has three windows it will receive light from three directions, and it will be suitable for portrait work at any hour when the sunlight is not shining through the window that is to be used as the background.

Even should the bay be so situated that the sun will shine on some side of it at all hours of the day, there will always be an hour when it does not shine on some one of the windows, and this one can then be used as the background for the picture. If sunshine comes through the other two windows these can be covered with cheesecloth or muslin—and splendid lighting effects will often be obtained.

The light that comes through the window which serves as the background will not satisfactorily illuminate the side of the subject that the lens sees, and in order to get enough light on this side of the face it will be necessary to place the subject quite close to the window, so that the light from one of the other windows will increase the illumination. A reflector must also be used for reflecting light to the face. A bed sheet is splendidly adapted for this purpose.

The reflector should be placed, as shown in the diagram, just as close to the subject as it can be without being visible in the finder.

If it can be seen in the finder it will show in the picture.

In making portraits with window backgrounds the lens must be pointed directly against the light, and as much as possible of the light that is not used for making the picture should be prevented from reaching the lens. If it passes through the lens it will reach the film and give the negative a foggy look. While all of the light that is not needed for making the picture cannot be kept out of the lens, yet much if it can be, and the way to keep it out is to stand beside the camera, a foot or two from it, in such a position that the body will shut off the strong side light, and then hold a piece of cardboard a few inches in front of and about a foot above the lens for shutting out the excess of top light.

The surest way of determining just where to hold the card, so it will shut off the excess of top light without showing in the picture, is to hold it so it can be seen in the finder, and then raise it and make the exposure as soon as the card has passed out of the field of view of the finder.

The exposure to give for window portraits can not be definitely stated, as this depends on the light conditions, but when the sun is shining, between the hours of 9 and 3, an exposure of from 1 to 3 seconds with stop 4 on rectilinear, or stop *f.8* on anastigmat lenses will usually be long enough, and, if it is cloudy-bright an exposure of from 2 to 6 seconds should be ample. With single lens cameras these exposures should be twice as long when the largest stop is used.

The data under our illustrations show that longer exposures than those we have recommended were given, but the negatives from which these pictures were made were considerably over-exposed, and it is owing solely to the non-halation quality and great latitude of Eastman film that they made good prints.

A PORT IN THE FRENCH RIVIERA
Made with a 3A Kodak. Stop, 22; 1-25 sec. exposure

Focus, 6 ft.; subject 2 ft. 9 in. Focus, 10 ft.; subject, 3 ft. Focus, 15 ft.; subject, 3½ ft.

On this and opposite page, relative (not actual) sizes of images the Kodak Portrait Attachment makes when used on a 3A Premo at the distances and at the focused points named

WHEN USING A KODAK PORTRAIT ATTACHMENT

Flowers, birds and all other small objects must be photographed at comparatively short range if large images are to be made of them.

With focusing hand cameras we can work closer to our subject than with fixed focus cameras, but even with focusing hand cameras we can not work closer than 6, or in some cases, 8 feet, unless a Kodak Portrait Attachment is used.

The portrait attachment does not increase the size of the picture that a camera makes, but it does increase the size of every image that appears in the picture.

The increase in the size of the images depends on the distance the camera is placed from the subject. With a portrait attachment in front of the lens many models of focusing cameras can be used as close as 2 feet, 8 inches from the subject.

The sharpness of a picture always depends on the accuracy of the focusing, and the closer the camera is to the subject the more accurate the focusing must be. Since the portrait attachment can only be used for subjects that are less than 6 feet from the lens the camera must be placed at just the right distance from the subject when the focusing indicator is set on any particular mark on the focusing scale. This distance must be measured and not guessed at, and the measurement made from the subject to the front of the portrait attachment and not

Focus, 25 ft.; subject, 3 ft. 9 in. Focus, 50 ft.; subject, 4 ft. Focus, 100 ft.; subject, 4 ft. 3 in.

from the subject to the back of the camera.

When the portrait attachment is used on fixed focus cameras the camera must always be placed at exactly 3½ feet from the subject, but when it is used on cameras that are fitted with focusing scales the camera can be placed both nearer and farther away.

The fact that the majority of the portrait attachment pictures, made with focusing cameras, that our readers have sent us, were made at the shortest possible range suggests that many never use it for any of the other distances for which it is equally well adapted.

The distance at which an object should be photographed in order to secure an image that will be in pleasing proportion to the size of the picture depends on the subject. For such small objects as flowers and birds, for instance, it may often be placed as close as possible, but for head and shoulder portraits of broad-shouldered people, and for full length portraits of tall children, it should never be placed as close as 2 feet, 8 inches, because at such short range the image will be too large for the size of the picture.

Too large an image crowds the picture area—a very unpleasing thing in portraiture, since it suggests that the person portrayed is abnormally large.

The illustrations on this and the preceding page show the relative sizes of the images obtained with the Kodak Portrait Attachment, when it is used at the various distances for which it is recommended, with a 3A camera. While these reproductions show all that the negatives contain they do not show the actual size of the photographs from which they were reproduced, being not quite 1-7 the size of the photographs. The actual size of the photographs is shown by the pictures on pages 12 and 13.

Actual size of portrait made at 6 feet WITHOUT *Portrait Attachment*

Actual size of same subject made WITH *Portrait Attachment.*
Focus set at 10 feet; subject 3 feet from lens

FILTERS FOR SNOW SCENES

Is a filter needed for making the best obtainable photographs of snow scenes?

A filter does not improve the rendering of the snow unless the sun is shining and there is both sunlight and shadow on the snow.

Snow is white and it always photographs white whether a filter is used or not, but shadows on the snow appear gray, and the trees and shrubs and other landscape fixtures are very dark in winter, usually appearing gray or almost black, in contrast with snow.

An orthochromatic filter, such as the Kodak or one of the Wratten K filters, will only slightly increase the contrast between white and gray, but a Wratten G Filter, which is a contrast and not an orthochromatic filter, will considerably increase the contrast and thus improve the rendering of sunlight and shadow on snow.

HAPPY DAYS
Made with a Vest Pocket Kodak

Both orthochromatic and contrast filters make blue photograph darker than white, and when we have blue sky and white clouds above the landscape a filter will give us a better picture than we could otherwise obtain.

The writer never uses a filter for snow scenes when the sky is gray, but always prefers to use one when the sky is blue, whether clouds are present or not, because from filter negatives of snow scenes, made when the sky is blue and the sun is shining, pictures can usually be printed that will suggest either day or night, the effect obtained depending chiefly on the length of time the print is exposed to the printing light.

When we desire to record the shadows on the snow we must expose, not for the shadows, but for the strongest lighted parts of the snow, giving about 1-4 the exposure that would be needed for a summer landscape.

The exposures suggested are:

1-100 of a second with stop 16 without a filter.

1-25 of a second with stop 8 (*f*.11) through a Kodak Color Filter.

1-10 of a second with stop 8 (*f*.11) through a Wratten K 2 Filter.

1-2 a second with stop 8 (*f*.11) through a Wratten G Filter.

With single lens cameras and the Kodak Color Filter make a snapshot with the same stop used for summer landscapes.

THIS IS THE BABY AT ONE YEAR
(There are a lot more of her on the next two pages)

MAKING A KODAK BIOGRAPHY

BY ALBERT CRANE WALLACE

Did you ever, at the movies, see a flower suddenly grow up? Or did you ever see a butterfly unfold from its chrysalis and become a full-fledged aviator?

Well, a Kodak biography of a baby sometimes gives an impression something like that. The baby herself isn't quite so sudden. She takes her time getting to be a month old. And a year seems to be a long time. But after it has happened the time seems very short.

In a bit of Kodak biography it all seems to be wonderfully quick, quite as if she were growing up before your eyes. Take a batch of prints in your hand and you can shuffle them to look like a kind of human kaleidoscope, never twice the same way. Which is natural enough, for the child is never twice the same way, especially, perhaps, when she is a baby. When she is a baby you are particularly grateful for your Autographic privilege. Nothing stops arguments as to how old she was *then* like an Autographic memorandum. You never in the world could prove every case so well in any other way.

A KODAK BIOGR

BEING A TRUTHFUL RECORD
EXTENDING INTO
THE FOURTH CHAPTER

At 9 months

At 1 year

At 17 months

At 2 years

APHY OF A BABY

At 2 years and 2 months

At 2 years and 4 months

At 2 years and 5 months

At 2 years and 8 months

At 2 years and 6 months

At 3 years

At 3 years and 8 months

SEPIA PICTURES BY RE-DEVELOPMENT

Of all the printing papers that have been invented the quickest to print and the simplest to manipulate are development papers.

Development papers are chiefly used for making pictures in black and white, but the black image that the various grades of Velox paper give can easily be changed to sepia, a tone which many prefer for such subjects as summer landscapes, interiors and portraits.

In the following article, the method of making sepia prints on Velox is discussed.

Of the various methods that have been employed for making sepia photographs the sulphide process of converting the black silver image of a development paper print into one of a sepia tone is the one that is most extensively used at the present time.

The most satisfactory method of sulphiding a development paper print is to re-develop it, because by this method no reduction of the image occurs and none of the detail of the picture is lost.

Pleasing sepia prints can be made from any negative that has strong highlights and deep shadows but the richest sepias are obtained from negatives that have a long range of tones. When a sepia print is made from a long scale negative it will usually show more distinct tones than can be seen in a black image print made from the same negative.

The shade of sepia obtained by turning a black image into one of a sepia tone depends on the density of the silver deposit, being dark where the silver is black and light where the silver is gray, and the reason why the sepia image often shows more tones than the black one is that a slight difference between the tones of sepia is more noticeable than a slight difference between the tones of black or gray.

The richness of the sepia tone depends on the quality of the black image that is re-developed. The darkest parts of this image must be either a pure black or a blue-black, not a greenish or brownish black, and in order to obtain the right kind of a black image the print must be exposed to the printing light for the minimum length of time that will record all the detail, and then be fully developed—not less than 20 seconds if it is on Regular Velox, or less than 30 seconds if on Special Velox. It is impossible to get a rich sepia from an under-developed black image.

The ideal developer for Velox prints, that are to be converted into sepia, is Nepera Solution, as this will give the right kind of a black image. The Elon-Hydro developer recommended for Velox will also give good results if it contains the least quantity of bromide that will prevent the print from fogging during development. Too much bromide gives the greenish or brownish black images from which good sepia tones cannot be obtained.

An over-printed and under-developed print may sometimes be pleasing in black but it is never pleasing in sepia, because there is

too little blackened silver in the shadows of such a print to make the shadows dark enough when the image is changed from black to sepia.

The method of re-developing a print with the Velox Re-developer is in every way as simple as developing the black image. The print is immersed in the bleaching bath and left there until all traces of black in the image have disappeared. When this has occurred the picture can be but faintly seen. It is then rinsed in water and placed in the sulphide bath, where the image, with all its original detail, is rapidly changed into a permanent sepia tone. Full directions for working the process are furnished with every package of Velox Re-developer.

All grades of Velox, excepting Glossy, are suitable for making sepia prints. Carbon, Portrait and Velvet Velox will give us sepia pictures on a white ground, while with Royal Velox we can make sepias on a cream-tinted ground, a combination that is especially pleasing.

On page 22 we discuss the advantages of making sepia prints from under-exposed negatives.

THE FORD
Made with a Kodak

NIGHT EFFECTS IN DAYLIGHT PICTURES

MANY interesting photographs of outdoor scenes, in which the lighting effects closely resemble those we see on moonlight nights, have been printed from negatives that were exposed when the sun was shining brightly.

Negatives that will yield such prints can easily be made if the subject is a suitable one and the light conditions are right.

We think of night as a period of darkness, and it is probably because of this fact that a picture will not adequately suggest night to us unless it contains more dark than light tones.

The deep shadows in a night scene are black, the half-tones quite dark and the sky is never as brightly lighted as in the daytime. If a picture is to suggest night it must render these tones as we see them at night, but it should also, for pictorial effect, contain some highlights. These highlights should be on the landscape instead of in the sky, and they can only be furnished by something that reflects light enough to photograph white or very light gray. Sunlight reflected from a sheet of open water, or from snow or ice, will furnish these highlights.

Sunlight is needed for giving the necessary contrast between the lightest and the darkest parts of the picture, and since the strongest lights are not to be in the sky it will be necessary to use a filter for photographing the subject.

The reason why a filter must be used is because all photographic films and plates are more sensitive to blue and violet than to any other colors, and since more of the blue-violet is reflected from the sky than from the landscape it is necessary to use a filter for cutting out the excess of these colors, if we wish to make a strongly-lighted sky photograph dark enough for securing the effect needed for suggesting a night scene.

The point of view from which to make such pictures is one from which more of the dark than of the light side of the subject can be seen, and the best time to make them is at that hour of the day when the greater part of that side of the subject that is to be photographed happens to be in shadow. The noon hour is as suitable as any other, if the light conditions are favorable at that time. The picture on page 21 was made at 11 in the morning when the sunlight was intensely brilliant.

In making such pictures we must expose for the strongest lights only. This will under-expose the shadows, so they will print black. If we expose long enough for recording detail in the shadows the result will be a day and not a night effect. Splendid results have been obtained with the K2 Filter when exposures of 1-25 of a second, and, with the Kodak Color Filter when exposures of 1-50 of a second were made, with stop 4 on rectilinear, or stop *f*.8 on anastigmat lenses.

With single lens cameras we would suggest an ordinary snapshot—with a Kodak Color Filter in front of the lens. If the pictures are made early in the morning or late in the afternoon, the exposures

AFTER THE THAW
Made with a Kodak

should be from 2 to 4 times as long as those stated.

Distant landscapes and all subjects that lack deep shadows are wholly unsuitable for the kind of work we have described. Typical night effects can only be obtained in daylight pictures of nearby subjects, in which plenty of dark tones can be seen.

Think first and then expose.

PLEASING PRINTS FROM UNDER-EXPOSED NEGATIVES

How to make a satisfactory print from an under-exposed negative is usually a problem for those who are particular about the quality of their work.

It has often been said that the best use to make of an under-exposed negative is to throw it away. It may be all right to do this after a better one has been obtained of the same subject, but it is a very unwise thing to do if a better one is not to be had.

An under-exposed negative always lacks detail in the shadows. The impossibility of making a print show detail which the negative does not contain is obvious, but it is often possible to make a print in sepia, from such a negative, which will be more pleasing than any print that can be made from it in black and white.

If the under-exposed negative has very thin highlights it will be flat, that is, lacking in contrast. If the best print that the negative can make in black and white, on Contrast Velox, is not satisfactory the negative should be intensified with the Eastman Intensifier, so that its contrast will be increased, after which a print should be made from it in sepia.

If the under-exposed negative has dense highlights and clear shadows it will be hard, that is, contrasty. A hard negative should not be intensified because it has all the contrast that is needed for making a rich sepia print.

It must not be supposed that intensification will add detail to a negative, nor that printing in sepia will add detail to the picture. Intensification merely increases the contrast between the tones of a negative, and, by so doing, it often makes it possible to print long enough for getting a deep sepia tone in the shadows and a light sepia tone in the highlights. When this happens the intermediate tones will be rendered in different shades of sepia, and as we can see more distinct tones of sepia than of black, a sepia print will usually show more tones than a black one.

There are two kinds of under-exposed negatives that can not be made suitable for printing in sepia—those that are so hopelessly under-exposed that no images can be seen by looking through them, though ghostly images may be faintly visible by the light that is reflected from them, and those utterly discouraging ones that are fogged. It does no good to intensify a photographic ghost, for it always remains a ghost, and by intensifying a fogged negative we increase the density of the fog as well as the density of the image and, consequently, gain nothing.

The method we have recommended will not produce the kind of pictures than can be made from correctly exposed negatives, but it will produce pictures from negatives that have masses of dark tones in contrast with light ones, that are often very pleasing.

While sepia prints can be made on all the various Velox papers, excepting glossy, yet for under-exposed negatives we especially recommend Royal Velox, which

makes sepia pictures on a cream-tinted ground.

The details of the sepia process are discussed on page 18.

A STREET OF OLD HOLLAND
Made with a 3A Folding Kodak by Mrs. W. C. Stuckslager

A SCENE IN NIPPON
Made with a 3A Kodak, by T. Toyoshi, Japan

PRINTS THAT ARE EXACT DUPLICATES

IT is a simple matter to make a lot of Velox prints from the same negative, in such a way that all of them will show the same amount of detail and the same range of contrast, and when the prints are so made they will be uniform, that is, they will be exact duplicates of each other.

No special skill is needed for doing this. It can be done by anyone who will repeatedly do the same thing in the same way.

All that is necessary for making uniform prints from the same negative, on the same grade of paper, is to expose every print to the same light, at the same distance from the light, for the same length of time, and to develop every print in the same developer (kept at the same temperature) for the same length of time.

In order to do these things accurately, the exposure must be timed with a watch or a clock that records seconds, or with the Eastman Timer, which is about the size of an ordinary alarm clock and has a hand that records seconds on a large dial. This is made especially for the convenience of the photographer.

The prints must all be printed by artificial light, because the brilliancy of daylight is apt to

change rapidly, and the printing must be done at the same distance from the light, since the strength of the light that reaches the negative is affected by the distance the negative is placed from it.

If a printing frame is used it should be set flush against a stop, such as a thin strip of wood, which is fastened at the desired distance from the light.

If a Kodak Amateur Printer is used in place of a printing frame the negative and the paper will always be at the same distance from the light, as the printer is so constructed that this distance cannot be changed.

The temperature of the developer must be tested with a thermometer and kept constant, and the length of time the prints are developed must be accurately timed and not guessed at.

Every one of these things is a purely mechanical act, which can be performed by anyone, and when these things are done accurately, uniformly printed prints will be obtained, each of which will be an exact duplicate of every one of the others.

AMALFI, ON GULF OF SALERNO, ITALY
Made with a Kodak, by A. J. Birdseye

A GLIMPSE OF AN ENGLISH VILLAGE
Made with a 3A Folding Kodak

SERVICE

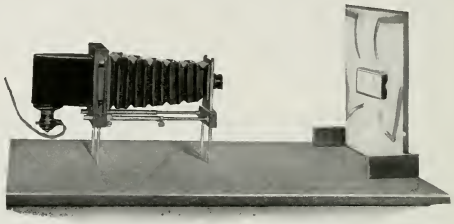
WHEN you purchase goods of our manufacture you establish a claim which entitles you to the service we extend to all photographers.

If you are a beginner in photography and desire information, or if you are an experienced worker and wish to undertake a kind of photographic work with which you are not familiar, write to us and we will gladly assist you.

The function of our Service Department is to assist those who wish to make better pictures, and this, like all other Kodak service, is rendered, free of charge.

Address all Communications,
SERVICE DEPARTMENT, CANADIAN KODAK CO., LIMITED
TORONTO, CANADA.

KODAK ENLARGING OUTFIT



CAMERA, illuminator and easel—everything necessary for practical enlarging—in an outfit compact enough to operate on a table top.

The camera will accept 4 x 6-inch negatives, or smaller, and large prints may be made to any size that the negatives, themselves, will permit. The easel furnished with the outfit, however, is 14 x 17 inches.

The outfit includes Enlarging Camera, lens and diaphragm, (largest stop U. S. 4) easel, lamp-housing, light cord and plug, but does not include the 60-watt Mazda electric light bulb.

THE PRICE

Kodak Enlarging Outfit	$28.00
Lantern Slide Block	1.00
Portrait Attachment No. 5 . . .	.75

CANADIAN KODAK CO., LIMITED

TORONTO, CANADA

Not only does an album provide the best way to keep prints but the best way to show them. Pictures neatly mounted in such a handsome album as the Kodak Album, for example, appear to best advantage.

The Kodak Album is loose-leaf with black genuine leather cover — Oxford Bible style edges.

THE PRICE

4¼ x 7, A, 50 black leaves . .	$4.25
7 x 11, B, 50 black leaves . .	6.50

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

The KODAK ANASTIGMATS

f.7.7 *f*.6.3 and *f*.4.5

THE watch maker who makes the delicate adjustments on a full-jeweled watch, the artificer who cuts and sets precious stones, the lens expert who comes as near perfect workmanship as scientific accuracy will allow, constitute in themselves an aristocracy of skilled labor.

It is in such an atmosphere, developed to the *nth* degree at the Kodak Lens factory, that the Kodak Anastigmat is fashioned.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

MAY 1920

CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.

The History of a Word

THE trade-mark "Kodak" was first applied, in 1888, to a camera manufactured by the Kodak Company and intended for amateur use. It had no "derivation". It was simply invented —made up from letters of the alphabet to meet our trade-mark requirements.

It was short and euphonious and likely to stick in the public mind, and therefore seemed to us to be admirably adapted to use in exploiting our new product.

It was, of course, immediately registered, and so is ours, both by such registration and by common law. Its first application was to the Kodak Camera. Since then we have applied it to other goods of our manufacture, as, for instance, Kodak Tripods, Kodak Portrait Attachments, Kodak Film, Kodak Film Tanks and Kodak Amateur Printers.

The name "Kodak" does not mean that these goods must be used in connection with a Kodak Camera, for as a matter of fact any of them may be used with other apparatus or goods. It simply means that they originated with, and are manufactured by, the Kodak Companies.

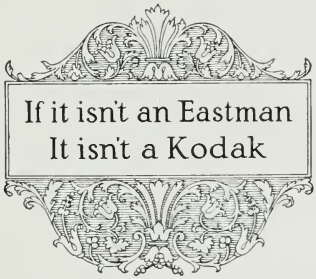
"Kodak" being our registered and common law trade-mark, can not be rightly applied except to goods of our manufacture.

If you ask at the store for a Kodak Camera or Kodak Film, or other Kodak goods and are handed something not of our manufacture, you are not getting what you specified, which is obviously unfair both to you and to us.

If it isn't an Eastman, it isn't a Kodak

CANADIAN KODAK CO., LIMITED

TORONTO, CANADA


If it isn't an Eastman
It isn't a Kodak

A BRITTANY COAST SUNSET

Made with Premo Camera; K-2 Filter; stop 8; ½ sec. exposure; August

KODAKERY
A Journal for Amateur Photographers

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VOL. VII MAY, 1920 No. 7

RUSTIC SIMPLICITY
Made with a Premo; K-1 Filter; stop 16; 1-5 sec. exposure; August

TWO PHASES OF FRANCE

BY ALBERT CRANE WALLACE

THE photographs accompanying these lines give a vivid impression of northwestern France—of that region called Brittany with which are associated so many romantic historical figures.

On pages 16 and 17 of this issue of KODAKERY is another group of pictures from another part of France, this time the stately vistas of Versailles.

What a contrast between these two glimpses!

Fancy trying to form an idea of a country with but one of these groups of pictures before you! The Brittany pictures suggest a land of homely life, of quaint simplicity,

A ROUGH STRETCH OF BRITTANY COAST
Made with a Premo; stop 16; 1-50 sec. exposure.

rugged nakedness of form, wild spaces and quiet life. Versailles reflects everything that is opposite—pomp, elegance, regal luxury, exclusive privilege, extravagant artifice, and the glitter of favored life. To-day, Versailles belongs to all the people. When it came into existence life was not quite the same. A lot of history has passed over its spacious avenues.

Such contrasts are not peculiar to France, and, fortunately, mere contrasts do not always suggest so many violent changes. Our own beautiful parks have no unhappiness of ancestry.

However, we shall have no difficulty in deciding that both of these phases of France offer charming pictorial results. Let the sociologist look for the deeper meanings. Our pictorial excursions are concerned with pictorial beauty and storm-tossed Europe again begins to invite the artist rambler.

The pictures of which I am speaking were made in France but a few months ago. They happen to be Premo pictures this time, with the film pack in evidence, and the Kodak filter serving, in some of the pictures, its valuable function of imparting naturalistic tones.

Taken in their entirety this series of pictures offers an exceedingly varied and interesting group of compositions. In the case of the prints reproduced on pages 16 and 17, the trimming has been varied in the interest of page composition—a study very attractive in itself. In fact, the pictures used to make up the two pages on Versailles were all $4\frac{1}{4} \times 6\frac{1}{2}$ prints, and offered opportunity for all sorts of printing adventure, all sorts of enterprise in arrangement.

After so many years of exclusion, the traveler with a Kodak is likely to visit Europe with a new definiteness of purpose as to subjects. The

AT LOW TIDE

Made with a Premo; K-2 Filter; stop 22; $\frac{1}{2}$ sec. exposure

THE OLD MILL
Made with a Premo; K-2 Filter; stop 16; ½ sec. exposure; August

drama of war will have fixed in most of us a wish to see certain places. And to wish to see is to wish to picture.

ON THE BRITTANY COAST
Made with a Premo; K-2 Filter; stop 16; ½ sec. exposure

TRIUMPH FOR THE HAWK—TRAGEDY FOR THE FROG!

A GRAFLEX ACHIEVEMENT

BY HOWARD TAYLOR MIDDLETON

Illustrated by the Author

THE canoe grounded with a comfortable little thud in a quiet cove of the dark-watered Rancocas.

I dropped my paddle and called to Marie in the bow: "Let's eat, honey; it's twelve o'clock and I'm starved."

"You're always starved, partner mine," came back the laughing answer, but I noticed with relish, despite the taunt flung at my appetite, that milady was already rummaging through our kit for substantial viands.

With our campfire crackling, the delicious aroma from frying bacon in the air, and the lure of a drowsy Indian summer noontime all about us, could there be anything more attractive! One thing only, the procuring a great picture!

The last morsel of our luncheon consumed, I left Marie at her task of scouring the frying pan with white sand, and strolled toward the

spring for a final drink. High up in the blue sea of the sky where a squadron of snow-white cloud ships floated majestically, I glimpsed a silhouette sweep across the golden disc of the sun and dart into a meadow. There, I knew, the last of the reedbirds, fat from a month of high living among the ripe seeds, lingered before their journey to the rice fields to the southland. The marsh harrier was hungry too.

The drink forgotten, I thought only of the long focus Graflex in the canoe, and the possibility of a wild life portrait. Racing back to camp, I had just grabbed the camera when Marie gave excited advice: "He's coming this way; lie flat in the canoe and snap him as he goes over you!" With frantic haste, I obeyed orders, and, as I flung myself under cover, I caught the flash of putteed legs disappearing behind a bush. "Honey" was speedily bound for seclusion also.

I raised the Graflex above the gunwale of the "Old Town," and sighted it in the general direction of the meadow when suddenly the image of the hawk appeared upon the mirror. As I was on the point of making an exposure, he set his huge wings and dove straight for a lily pad. I could hear my heart thumping beneath my outing shirt, but I didn't fire. Something told me, "Hold your aim for a better shot!"

Right into the water the big bird went with a splash, the spray flying in a cascade from his flashing pinions, and as he rose, I pressed the release—and breathed again.

"Gee, partner mine; it's a shame you weren't nearer. It won't be much of a picture, will it?" and a disappointed voice emerged from ambush.

"Cheer up; perhaps it will prove a better picture than we think," I consoled her. Although the game was quite fifty feet from me when he made his sensational dive, I felt confident of success. The camera was a 4 x 5 Revolving Back Auto Graflex, fitted with a 9⅞ inch *f*.4.5 lens. This superb equipment was new and Marie had never used it on birds, which accounted for her pessimism. She didn't realize to the full its wonderful powers, you see.

Two hours later in the ruby glow from our dark room lantern, we developed the Seed Graflex plate. It was good to hear Marie's cry of sheer delight when the figure of the hawk sprang into prominent view upon the negative, and her joyful surprise reached its height when she discovered a frog in his talons.

"Crickets! what a picture," she exclaimed, dancing about in the gloom to the danger of sundry furniture, not omitting masculine toes. "Mr. Marsh Hawk scooped a frog off a lily pad and you caught him at it." Her tone was most congratulatory, then her wonder grew greater still: "How far off were you, partner mine?"

"Fifty feet at least," I replied.

Silence for a moment followed by a tense whisper full of respect for a great instrument: "SOME CAMERA."

In our next number Mr. Middleton will explain how he makes birds, that are in flight, photograph themselves with a Graflex.

A "CLOSE-UP" OF THE HAWK AND FROG
Enlarged from part of negative

PORTRAITS BY FLASHLIGHT

When we are about to make an indoor portrait we may find that the furnishings in the darkest part of the room will provide the most suitable background that is available, and when we wish to make a portrait beside a window it may be at an hour when the daylight is very weak. We will also want to make many an indoor portrait of the baby and, of course, the baby will sometimes refuse to hold still long enough for a "time" exposure.

These conditions present problems which, like nearly all other indoor lighting or exposure problems, can be easily solved by making flashlight instead of daylight pictures.

With flashlight we have perfect control over the lighting and also over the exposure that the film receives, because the intensity of the light that reaches the film during the period of exposure is determined by the brilliancy of the flash, the distance the flash is made from the subject, and by the stop used.

Any indoor lighting effect that can be secured by daylight can be duplicated by flashlight, and many pleasing effects can be obtained by

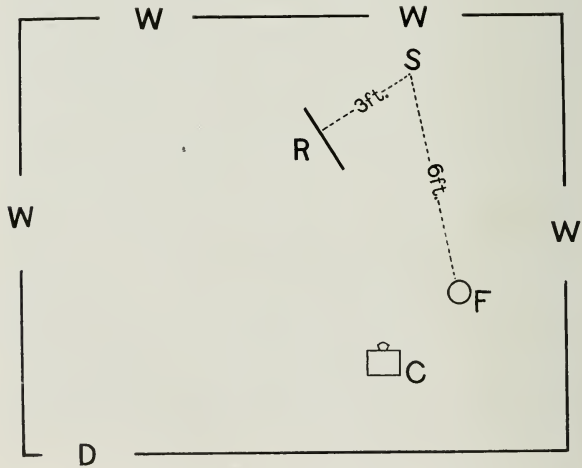


Diagram showing arrangement of room in which the picture on opposite page was made. S—subject; C—camera; F—flashlight; R—reflector; W—windows with shades up; D—door.

Made with a Premo and No. 2 Eastman Flash Sheet, stop 8. Flash ignited 6 feet from subject. White muslin screen placed 2 ft. in front of Flash Sheet

flashlight that, owing to the position of the windows and doors through which the daylight must come, cannot be secured by daylight.

With the Eastman Flash Sheet attached to an Eastman Flash Sheet Holder, an exposure can be made at any moment desired. There need be no guesswork about the result, because the instant the subject has assumed the position and the expression desired the shutter can be opened on "bulb" with one hand and a lighted taper held in readiness passed through the hole in the Flash Sheet Holder with the other hand. As soon as the flash has been made the shutter is closed and the record is on the film.

Our illustration was made at 5 P.M., December 27th. The window shades were left up because the sun had set and the daylight that came through the windows was so weak that three ceiling lights were turned on, so that the subjects would not be startled by the brilliancy of the flash.

By never telling the subject when the flash will be made the staring eyes, sometimes seen in flashlight pictures, will be avoided.

It is important to have plenty of light in the room at the time a flashlight portrait is being made. When the room is well lighted the brilliancy of the flash will scarcely be noticed and the pupils of the eyes will not be enlarged, as they are in darkened rooms, but will be the same size as they usually are in daylight.

If flashlights are made during the bright hours of the day the strong daylight of the room should be subdued by drawing down some of the window shades, but if flashlights are made when the light in the room is very dim, or when it is wholly dark, the lamps should be lighted. Neither very subdued daylight nor artificial light in living rooms will be apt to affect the film during the short time the shutter is open just before and just after the flash is made.

The light that an Eastman Flash Sheet gives spreads considerably, giving a soft, well-diffused light. Because of this fact the flash sheet must be at least three feet from the walls and curtains, and not less than two feet from the ceiling. The Flash Sheet Holder should be above the level of the subject's head.

It is advisable to use a muslin or cheesecloth screen, about three feet square, a foot or two in front of the flash, to still more diffuse the light. This gives the soft lighting effects desired in portrait work.

A white reflector should be placed about three feet from the subject, as shown in the diagram, for reflecting the light to the shadow side of the subject. This can be attached to a T-shaped support, made of two sticks, and tied to a piece of furniture, or it may be held by an attendant.

The windows should be opened immediately after a flash has been made, so the smoke will all pass out of the room. If a picture is made while there is smoke between the subject and the lens the picture will have a foggy appearance and will also look as though it was under-exposed.

In flashlight work the intensity of the light that reaches the subject is as the square of the distance. If the exposure is correct when stop 8 (*f*.11) is used, with the flash six feet from the subject, then stop 4 (*f*.8) must be used if the flash is nine feet from the subject.

All flashlight preparations are inflammable and must be carefully handled. Children should never be allowed to touch them and they should always be handled and used with the care that the manufacturers recommend in the instructions that accompany them.

INTERIOR OF COPTIC CHURCH, NEAR CAIRO
Made with a No. 3 Kodak, by Mrs. E. S. Welch

THE PLOUGHMAN, NEW AGRA, INDIA
Made with a 3A Folding Kodak

THE MANUAL

An instruction book, known as a manual, is furnished with every hand camera that is sold by the Canadian Kodak Co., Limited. This booklet explains in detail how to use the particular model of camera to which it applies.

The mechanical equipment of a Brownie differs from that of a Kodak or a Premo, and the mechanical features of different models of the same kind of camera are somewhat different. It is, therefore, just as important for experienced amateurs who have exchanged cameras, or bought a new one, as it is for the beginner in photography, to read the manual that applies to the camera they are about to use. Those who neglect to do this may have to learn from sad experience what the manual would have taught them in a few minutes.

In addition to explaining how to manipulate the camera the manual tells how to make flashlights and portraits both with and without the portrait attachment, how to photograph interiors and exteriors of buildings, as well as landscapes and other outdoor subjects, and it also contains much other information that is of practical value to all camera users.

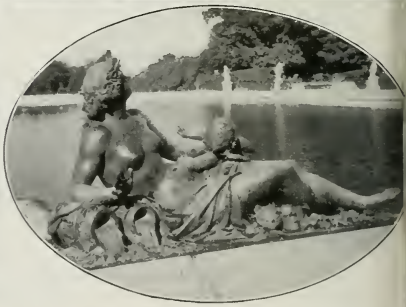
Many amateurs have made good pictures, without having had any previous experience, by merely following the instructions that are in the manual. When a photographic problem arises the first thing to do is to consult the manual. If it does not solve the problem for you then promptly write to the Editors of KODAKERY, stating the case in detail, and they will gladly help you solve it.

Always preserve the manual and keep it ready for instant reference. When you have learned all it will teach you you will have a good start along the photographic road.

LARIAT
STUNTS

Made with a Kodak *By Harvey C. Pendery*

THE PARK OF



RSAILLES

ADE WITH A PREMO
IN
OCTOBER, 1919
'SING PREMO FILM
PACK FILM

(SEE FIRST ARTICLE IN THIS NUMBER)

FIG. 1
Print from Pyro-Developed Negative

THE PYRO DEVELOPER

A GREAT many developing agents have been introduced since pyro was first used for developing negatives, but in spite of this fact pyro still stands supreme as the developer that produces negatives which, for printing quality, have never been excelled.

Many photographers who tried other developers, after having used pyro, discarded them and went back to pyro because they found that the prints they made from pyro developed negatives showed a better rendering of tones than prints made from negatives that were developed with any other developer they had tried.

The function of the developer is to make visible the image that the light has recorded on the film. It does this by converting into metallic silver the silver salts on which the light has acted.

A characteristic of the pyro developer is that it not only develops the image but it also stains those parts of the gelatine in which the image is embedded, and it is this stain which gives a pyro developed negative its peculiar quality.

The stain is yellow, and the depth of its color depends on the quantity of sulphite of soda that is used in the developer. The greater the quantity of sulphite, the lighter will be the color of the stain.

If too little sulphite of soda is used in the developer the pyro will stain all of the gelatine, so that even the deepest shadows, and also the margins of the negatives which are outside the picture area, will be yellow. It is probably because this often happens in tray development

FIG. 2
Print made from Pyro Negative after Pyro Stain had been removed

that some have expressed the opinion that the same quality of print that a pyro negative makes can be obtained from a negative that was developed with another kind of developer, by printing from this negative through a sheet of yellow glass, so the light must pass through the yellow glass before it can pass through the negative to the paper.

If the pyro stain was of a uniform depth of color throughout the entire negative there is no apparent reason why this could not be done. But it is not of a uniform depth of color. The depth of color in a pyro negative is proportional to the density of the various parts of the silver image—deep where the silver is dense and light where the silver is thin.

But even when this stain is so slight that it is practically invisible after the negative has been fixed and washed, it can be made plainly visible by removing all the silver from the negative. When this is done the stain image that will be found will be a duplicate of the silver image which was removed.

Since this stain image is in exactly those parts of the gelatine where the silver image lies, and is incorporated with the silver image, it acts as an intensifier, and it is because of this fact that a pyro developed negative of little visual density will make prints that will equal (some contend will excel) in brilliancy any print that can be made from a negative that was developed with any other than a pyro developer, no matter what its visual density may be. By visual density we mean the density that can be seen by holding the negative up to the light and looking through it.

Our illustrations were made from

FIG. 3

Print made from Pyro Stain only, after all the Silver had been removed

two negatives which received exactly the same exposure and the same development. They were developed together, for the same length of time, in a Premo Film Tank, with Premo Tank Powders, which are pyro powders. These negatives were, in every respect, exact duplicates

On holding these negatives up to the light no yellow stain could be seen. The margins of the negatives, and the deepest shadows, appeared to be transparent and colorless. The color of the images was a warm black.

Our illustrations are half-tone reproductions from the photographs that were made from these two negatives, and while they illustrate the points we will refer to, they do not show the exact quality of the photographs, because of the inability of the half-tone reproduction process to render all the tones that a photograph may contain.

Fig. 1 represents a print from a pyro negative which contained the developed silver and the pyro stain.

Fig. 2 represents a print from the same negative after the pyro stain had been removed, with the permanganate reducer mentioned in the November KODAKERY. This reducer removes pyro stain before it attacks the silver, and the action of the reducer was stopped as soon as the stain had been removed. This occurred when the color of the image changed from warm black to black. The absence of the pyro stain is responsible for the lack of snap and brilliancy that Fig. 2 shows.

Fig. 3 represents a print made *from the pyro stain only,* after all the silver had been removed from the negative, with the Farmer's

reducer mentioned in the January KODAKERY. This reducer was used at double strength to make it work quicker.

Figs. 1, 2 and 3 were all made on the same grade of paper in order to show the relative printing value of the silver combined with the stain (Fig. 1), of the silver only (Fig. 2), and of the Pyro stain only (Fig. 3).

The stain image that was left in the gelatine after all the silver had been removed was of a light yellow color, and while this stain could be distinctly seen on looking through the film, the detail in this stain image could only be plainly seen by placing the film on a sheet of white paper and viewing it by reflected light.

Is pyro, therefore, the very best developer for negative-making? This question has often been asked, and while competent authorities differ—some claiming they have gotten as good printing negatives with other developers, and others claiming they have never been able to do this—they all agree that they cannot depend on getting any better printing negatives with any other developer than they can regularly get with pyro.

From what has been demonstrated the photographer will understand why pyro still stands supreme, at the head of the list, as a developer for the making of negatives, and he will also appreciate why the powders that the Canadian Kodak Co., Limited, prepares for use in the Kodak and Premo Film Tanks are pyro powders.

LA POULJGUEN—BRITTANY
Made with a Premo; stop, f.8; 1-10 sec. K2 Filter

Print showing Exact Size of Negative Image enlarged on opposite page

LARGE PICTURES

THERE are times when every photographer wants to make larger pictures than his camera will take. The only way he could make them, years ago, was by using a larger camera.

The writer knows photographers who began with a 4 x 5, then bought a 5 x 7, and, finally, an 8 x 10, and the only reason why they never bought an 11 x 14 was because the 8 x 10, with its plate holders and tripod, made as heavy a load as they were willing to carry—and the 8 x 10 outfit often proved a burden.

This method of making large pictures was expensive. The cameras and the supplies needed for operating them were large and necessarily costly, and the photographer had to have lenses of various focal lengths available, for it sometimes happened that the picture could only be made from a viewpoint which compelled him to use a very long or a very short focus lens, in order to get what he wanted in the picture.

The present day amateur who wants to make a large picture can make the negative on film with his compact, light weight hand camera, and then make an enlargement of whatever size he prefers from this film, directly on bromide paper, since bromide paper and a particular type of enlarging camera have revolutionized the making of large pictures.

Of the many kinds of enlarging cameras that have been designed several styles are still in use, but the particular type that permits the widest range of control in the printing of the enlargement, and with which enlargements of any size can be made, is one of the

Enlargement of about 2 1-3 areas made from same negative as contact print on page opposite

focusing types, in which the negative is held in a sliding frame or carrier, which fits in the back of the camera, while the lens is attached to the camera front. The light that prints the picture passes through the negative, then through the bellows to the lens which projects the negative image to a movable board, known as an easel.

The image is focused on a sheet of white paper which is attached to the easel. After the focus has been adjusted the bromide paper is placed on the easel and the exposure made.

The enlargement thus obtained may be of any shape or size desired. The shape is determined by the mask that is placed over the negative, and the size of the picture is determined by the distance from lens to negative and lens to easel. These distances can be quickly adjusted by the photographer for securing the size of enlargement that is wanted.

The Kodak Enlarging Outfit is an enlarging equipment of the type we have described. While this outfit is very simple it has all the essential features that are needed for doing the same range of work that the larger and more elaborate professional outfits will do.

ENGLISH SADDLES
Made with a Vest Pocket Kodak

The Kodak Enlarging Outfit includes camera, negative carrier, lens, lamp house and easel. It is furnished complete, ready for use with the sole exception of the 60 watt mazda lamp that gives the light for printing the enlargement. Local lighting companies supply 60 watt lamps that are adapted for the voltages their lines carry.

With this equipment the photographer can make enlargements from the whole or from any part of a negative, in any dark room. When a dark room is not available in the daytime the enlargements can be made at night in any ordinary living room.

When all doors are closed and all window shades are drawn to fully cover the windows, any room into which no artificial light penetrates, will be dark enough for making enlargements at night. Traces of moonlight that may come into the room through the spaces between window shades and windows will not affect bromide paper unless the moonlight shines on the paper.

The Kodak Enlarging Outfit will not only make enlargements from 1⅝ x 2½, 2¼ x 2¼, 2¼ x 3¼, 2½ x 4¼, 2⅞ x 4⅞, 3¼ x 4¼, 4 x 5 and 3¼ x 5½ negatives, which are the popular sizes, but from all sizes of both film and glass negatives that are not larger than 4 x 6.

The Kodak Enlarging Outfit will make enlargements on Special Velox, but bromide paper is recommended in preference, because it prints much more quickly.

CLEAN AND FOGGY LENSES—BRILLIANT AND FOGGY PICTURES

"WHY is it that my camera will not make as brilliant pictures as it did a year ago?"

Those of our readers who have asked this question are probably fortunate enough not to need eye glasses, for wearers of glasses know, from experience, that the cleanness of their glasses determines the clearness with which they can see.

Those who do not wear glasses will, perhaps, best appreciate what a dirty or foggy lens will do to a picture, by cleaning part of a soiled window pane and then looking out on a sunlighted scene through the clean and then through the foggy parts of the window.

Lenses are made of glass and all glass, whether it is the kind used for making window panes or the kind used for making lenses, becomes coated with a filmy deposit on prolonged exposure to the atmosphere. This is due to various causes, but the one that can most easily be observed is the condensation of moisture on window panes which, on drying, makes the glass look foggy.

When a camera that has been out in the cold is taken into a warm room it should be kept closed for several minutes, so that the temperature of the lens will change slowly and none of the fine dust which is ever present, though it may be invisible, in living rooms, becomes attached to the lens by condensing moisture.

Lenses do not condense moisture when they are suddenly taken from a warm room into the cold outdoor air in winter. Condensation only takes place when the condensing surface is colder than the air in which the moisture is suspended.

Since the temperature of glass changes more slowly at all times of the year than the temperature of the air, lenses are constantly acting as condensers of moisture, and it is best to examine them often.

The first thing to do toward cleansing a lens is to remove any dust which may be on it. Use a camel-hair brush for dusting. This is important, as removing dust from a lens by rubbing it with a stiff cloth or brush will be apt to scratch it.

After the dust has been removed breathe on the lens and wipe it with a clean, well-worn linen handkerchief which has been made soft by repeated laundering.

Lenses should never be wiped with any stiff cloth or with silk or chamois skin, nor should paper ever be used, unless it is the kind especially made for the purpose, and has been purchased from a dealer in optical goods.

Never clean a lens with alcohol or any kind of acid, and never use any kind of polishing preparation on it, or it may be necessary to send it to the makers for repairs—which may prove expensive.

It is not often necessary to take a lens out of the shutter or the barrel in which it is mounted, as it is only the outer surface which is apt to become foggy, but if both the inner and outer lens surfaces do need cleaning be sure to remove and replace one combination before

removing the other. If the combinations are transposed, so that the front combination is placed where the back one belongs, and the back combination is placed where the front one belongs, the lens will, in all probability, be useless until the combinations are placed where they should be.

Never remove a lens from its cell (the metal rings that hold it), for if this is done the lens may have to be sent to the makers for repairs.

Single lenses that are mounted behind the shutter are often built into the camera, so they can not be removed. They can be cleaned with a piece of handkerchief wrapped around the head of a small pencil-shaped brush after the shutter has been opened as for a time exposure.

Since foggy lenses make foggy looking negatives and since it takes a brilliant negative to make a clean-cut, brilliant print, it is important that you should keep your lens clean.

THE NURSE
Made with a Kodak

CARE OF PHOTOGRAPHIC SHUTTERS

Oil is an engine's best friend, but a photographic shutter's worst enemy.

Every photographic shutter has bearings, just as an engine, a machine or a watch has, but the bearings in a shutter work occasionally—usually for only a fraction of a second at a time, while the bearings in engines and machinery work continuously—often for hours at a time, and those in a watch work without stopping, for many months. Bearings that are constantly in action must, of necessity, be lubricated.

Photographic shutters are designed to work without lubrication, and oil, instead of helping, will invariably handicap them.

A high-grade watch has jeweled bearings while a shutter has not. A watch is carried in the pocket or worn on the wrist, where its temperature is kept fairly constant. If it was left in a very cold room for a few days, or exposed to sudden and severe changes of temperature, it would not keep time, for the oil in its bearings would thicken and make it run slow.

A photographic shutter is freely exposed to the temperature of the air, and it is taken from warm rooms out into low temperatures in winter, as well as into very high temperatures in summer. It is exposed to sudden and severe temperature changes and it is so constructed that changes in temperature will scarcely affect it. If it needed oil it would work much slower in cold than in warm weather and the photographer would never know at what speed marking to set the indicator for securing the right exposure.

It is probable that more shutters are put out of order by oil than by accidents and all other causes combined, and, after a shutter has been oiled it always needs the attention of the makers.

The best care that can be bestowed on a photographic shutter is to keep its outsides clean and to let its insides alone. When this is done it will usually render good service for many years.

"WHY DON'T YOU WALK, DOLLY?"
Made with a No. 2C Kodak, Jr.

SERVICE DEPARTMENT TALKS

FOG FROM EXTREME OVER-EXPOSURE

Among negatives that pass through our Service Department for constructive criticism are many that show the kind of fog that is caused by extreme over-exposure.

This is usually the result of leaving the shutter open, instead of closing it, after a time exposure has been made, and the inference is that photographers sometimes try to make snapshots with the shutter indicator set on "T" instead of on one of the instantaneous markings, such as 25, 50 and 100.

If the indicator is set on "T" it will require two pressures of the finger lever, or the cable release, one for opening and the other for closing the shutter, instead of the single pressure that is needed for making an instantaneous exposure.

Should the indicator be set on "B," which is used for short time exposures, the shutter will remain open as long as the pressure is maintained on the finger lever or on the cable release.

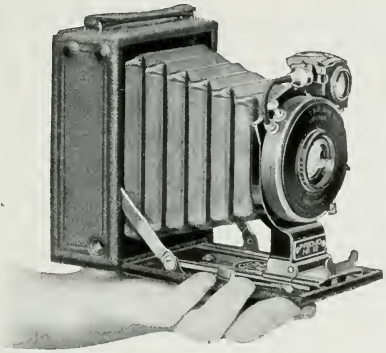
Always make sure that the speed indicator is set for the work you wish to do,—on "T" for a long time exposure, on "B" for a short time exposure, and on one of the speed markings for an instantaneous exposure.

Should you encounter any problems in your photographic work that you cannot readily solve, submit them to us and we will gladly help you, free of charge.

Address all Communications,

Service Department, Canadian Kodak Co., Limited,

Toronto, Canada.



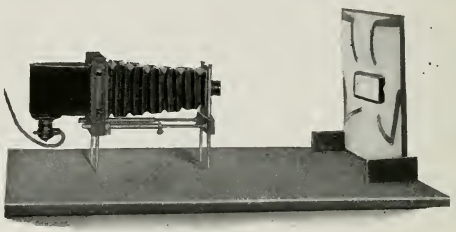
Premo No. 12

A Pocket Camera of Quality

UNUSUALLY small for the size picture it makes—2¼ x 3¼ inches—the Premo *twelve* is not too small to be thoroughly serviceable in its adaptability to all-round work. It is at once a daylight loading film and plate camera. And there is a choice of lens and shutter equipment that will meet your requirements.

At your Kodak dealer's

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



Kodak Enlarging Outfit

THE most practical, efficient method of making enlargements, that the amateur has ever had at his disposal.

An outfit complete in itself—camera, illuminator and easel—and all the space required is a table top. The camera will accept 4 x 6-inch negatives, or smaller, and large prints may be made to any size that the negatives, themselves, will permit. The easel furnished with the outfit, however, is 14 x 17 inches.

The outfit includes Enlarging Camera, lens and diaphragm, (largest stop, U. S. 4) easel, lamp-housing, light cord and plug, but does not include the 60-watt Mazda electric light bulb.

THE PRICE

Kodak Enlarging Outfit	$28.00
Lantern Slide Block	1.00
Portrait Attachment No. 5 . . .	.75

CANADIAN KODAK CO., LIMITED

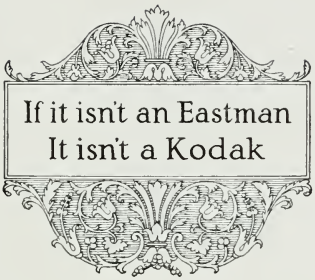
TORONTO, CANADA

KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

JUNE 1920

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.


If it isn't an Eastman
It isn't a Kodak

TROPHIES
Made with a Pocket Premo

KODAKERY
A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 60 CENTS; SINGLE COPIES, 5 CENTS

VOL. VII JUNE, 1920 NO. 8

THE PARLIAMENT BUILDINGS, VICTORIA, B.C.
Made with a 3A Kodak, by F. A. Hargrave; f. 16; 20 min.

OUTDOOR PICTURES BY ELECTRIC LIGHT

INTERESTING night pictures, that are very different from any that it is possible to make by daylight, can often be secured by photographing the well-lighted streets of a city on a dark night.

Those who have never undertaken this kind of work may be surprised to find that some of the pictures they obtain will record things they did not see and will fail to record some of the things they did see.

We see people and vehicles moving along the streets at night, but as we cannot photograph them with snapshot exposures, and do not want our picture spoiled by

A CITY VISTA
Made with a 3A Kodak, by H. J. Ribotski; 9 P. M.; stop 8; 7½ min.

blurred images of moving objects, we prefer that these moving objects should not be recorded at all, and this is just what happens in outdoor night photography.

This fact is illustrated by Mr. Ribotski's picture, which records the brilliant stationary lights, the areas these lights illuminated and also the brilliant lights that were on the automobiles and electric cars that were moving toward the camera, but it does not record the automobiles and electric cars to which these lights were attached, nor show the people that must have been walking on the sidewalks at the hour the picture was made—9 P. M.

The picture furnishes no evidence that vehicles of any kind were traveling, as it is quite certain they were, along the right-hand side of the street, because on this side of the street they were moving away from the camera, and only their non-actinic red tail lights were visible to the lens.

The automobiles that are shown in the picture were recorded because they remained stationary during the 7½ minutes exposure, with stop 8, that the film received.

Had a picture been made of this same street as it appeared when illuminated by sunlight, an exposure of 1/50 second, with stop 8, would have been ample, and this daylight exposure would have recorded every object that could have been seen from the point of view of the lens, so that the daylight picture would, consequently, have been very different than the one that was obtained at night.

When we consider that the night scene received 22,500 times the exposure that would have been necessary for the day scene we will appreciate why pictures made at

CHURCH FACADE
Made with a 3A Special Kodak, by A. C. Wylie; f.11; 25 min.

night record dark-toned objects only when they remain stationary during the period of exposure.

Among other interesting subjects for outdoor night photography are buildings that are brightly illuminated. The pictures by Mr. Hargrave and Mr. Wylie suggest the possibilities of this kind of work.

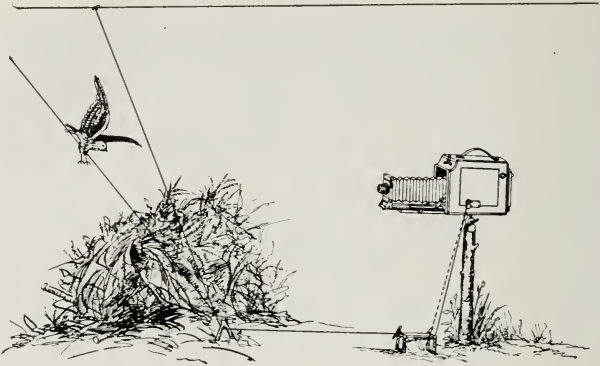
The exposure to give for night scenes depends, of course, on the brightness of the light that the subject reflects to the lens, and on the size of the stop used. Since the larger the stop the shorter will be the exposure needed, it is recommended that a stop not smaller than No. 8 (*f*.11) be used, so that the exposure will not be unduly prolonged.

When the focus is set for the approximate distance from the lens to the subject this stop will give sufficient depth of focus for all subjects that are 50 feet or farther from the camera.

When using a single lens fixed focus camera, which has no stop marked 8 or 11, use the largest stop and give the same exposure (5 to 10 minutes) that you would give with an anastigmat or rectilinear lens.

The short exposure which Mr. Ribotski's picture received was required because of the size of stop employed—No. 8, which on Anastigmats is *f*.11. Had stop 16 been used the same record would have taken 15 minutes.

When photographing buildings that are illuminated by arc lights the most pleasing results are obtained when the lights themselves are not included in the picture. Whether the arc lights will or will not be included in the picture can always be determined by looking in the finder.



HOW THE MOUSE TRAP PRINCIPLE WAS APPLIED TO THE PICTURE-CAPTURE OF THE HAWK

GRAFLEXING A HAWK WITH A MOUSE TRAP

BY HOWARD TAYLOR MIDDLETON

Illustrated with Graflex Pictures by the Author

FOR a long time we had been yearning to procure some close-up Graflex portraits of our wild life friends *in action*. There seemed to be but one practical way to do this: to induce the subject to take his own picture through the medium of a bit of thread attached to shutter trip and operated from a distance. It is frequently impossible, as we have learned by experience, to approach near enough to the creatures of the wilderness, to photograph them by holding the camera in the hands.

We had found the thread method of obtaining self portraits successful when applied to the Premo, as the shutter on that instrument snaps very easily; but with the Graflex release it is a different matter. It requires not simply a touch, but a steady downward pull to release the focal plane shutter.

We were still cudgeling our brains for an idea, when Marie caught her finger in a "Hold Fast" mouse trap, and solved the problem. Hearing a cry of pain from the direction of the cellar, I investigated to find my little wife nursing an injured member and making uncomplimentary remarks about traps that went off half cocked.

"I scarcely touched the pesky thing," she assured me, while a big tear threatened. "I was just looking to see if the bait was in place on the pedal, when Snap! it got me by the finger."

If the trap had a hair trigger, and circumstances certainly pointed

THE HAWK AT THE MOMENT OF HIS CAPTURE

that way, and the spring was of sufficient strength to operate the Graflex, we had what we'd been waiting for. As I realized this, I grinned in huge relief.

"Don't laugh at me, partner mine, it hurts!" and the tear fell overboard.

"I've good news; cheer up," I soothed her. "The trap shall pay a penalty for hurting you; we'll put it at work on a new job."

This is how we hitched the mouse trap to the Graflex: We bored a hole through the base of the trap, at the pedal end, and ran a thread through it to pedal. This thread would lead to the subject and be operated by it. A second thread was attached to the wire loop that flips over when the trap is sprung, and whacks the mouse—or a feminine finger, as the case may be. This thread was to snap the camera. The final thing to be done was to clamp the trap, mechanism side down, below the Graflex in order that the pull which the loop would make upon the release, would be directly downward.

Rummaging in the garage, we found two iron clamps, with thumb screw bolts attached. These, when fastened to the trap, one at either end, formed a rigid base, allowing enough space between the loop and the ground for the former to operate freely.

Now, for the test: The camera shutter was set, trap placed in position beneath it, and threads connected. Then I pulled *very* gently on the pedal thread. Thud—Snap! went our double team—the scheme was a practical one.

"Get the car, please, while I pack a lunch," and Marie was racing kitchenward, spouting orders as she ran. "We're going over to Cummings' cornfield to try out this invention on a hawk."

"How about the finger?" I asked sympathetically.

"It's better; hurry!"

Thus relieved and encouraged, I brought the car round, and we were soon bowling along the concrete road toward our destination.

The reason Marie had picked Cummings' cornfield was because she knew the shocks were full of mice, as she had seen hawks dive into them, only to rise again with tiny rodents in their talons.

Upon our arrival, we drove a stake into the ground, fastened the Graflex to it with an Eastman Universal Clamp, and focused upon the top of the shock. Then threads were run from a telephone wire high overhead down to a forked stick just above the ground, and from that to the pedal of the trap. From the loop of the trap another thread ran to camera shutter.

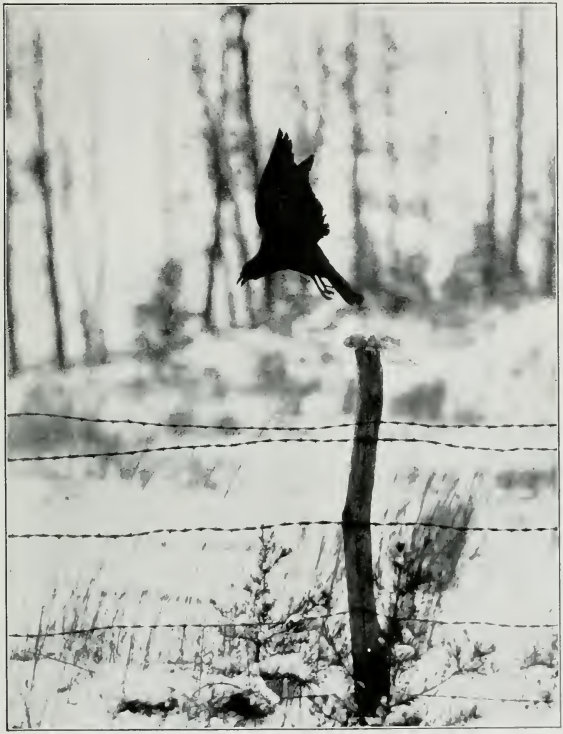
Everything being in readiness, the outfit was camouflaged with corn stalks, and we went back to the car. Three hours later, we returned to find the trap sprung and the Graflex release likewise.

While the evidence is all circumstantial, there being no human witnesses, we are willing to wager it happened thus: Mr. Hawk, with a mouse hunger on, dove toward the corn shock. It is just probable he heard a squeak, and was in the act of locating its source, when his wide-flung pinions touched the thread. Something went Thud—Snap! and, scared and disgusted, he fled away without his dinner.

However, it matters not to us how it happened; we had pulled off another stunt in wild life photography—that is the thing that counts.

"How is the sore finger now, honey?" I asked again as we motored homeward.

"I had quite forgotten I owned



JIM CROW MADE HIS OWN PORTRAIT

one, really," came the happy reply. Then with her eyes upon the speed dial, my wildly-elated companion issued a peremptory command, "We'll never reach our dark room at this snail's pace; give her gas!"

I stamped on the accelerator, and we arrived at the house with a steaming engine—suspense is a terrible thing.

Since Graflexing the hawk with a mouse trap, we have tried out

the same scheme on Jim Crow, and, as the illustration shows, we were once more successful.

This time we baited a fence post with an ear of corn, nailing the dinner fast so that James would be forced to dine in the restaurant we had prepared for him, for he has a habit of flying away with his meal when it is possible to do so. Then threads were suspended in such a fashion that he could not fail to hit one, either coming or going. The picture shows him making a dignified departure.

A FAIR PATHFINDER
Made with a 2C Kodak Jr.

PHOTOGRAPHY AND X-RAYS

When X-rays were first utilized by Roentgen in 1895, possibly no one would have dared prophesy the wonderful possibilities of this new type of radiation. Yet in the space of twenty-four years, from occupying a place as a scientific curiosity, the rays have become so widespread in use in medical practice, technical processes and scientific research as to make them absolutely indispensable.

A good deal of this progress has been brought about by the possibilities opened up through the development of photographic materials. The evolution of the sensitive dry plate or film in this progress has been of prime importance. In 1895, an exposure of some five to twenty minutes was required, in average cases, to radiograph a human hand or foot. To-day we can make the same exposure under similar conditions in as many seconds. In 1895, it was impossible to radiograph thick parts of the body. To-day, by taking advantage of the latest photographic methods, we can take an X-ray of the chest, the stomach or the spine in the fraction of a second if it is desired. A short description of the fundamentals of this interesting phase of photography will probably be of interest.

AN X-RAY PHOTOGRAPH OF A FOOT

THE KNEE—SHOWING THE SEPARATED KNEE CAP OR PATELLA

X-rays, although invisible to the human eye, are now known to be a form of radiation very similar to our ordinary light, differing from light only in the wave length of the radiating energy. The most striking result of this difference is that X-rays will penetrate materials which are quite opaque to light. This is due to the extremely short wave lengths of X-rays, for while light waves are about 1/50,000 of an inch in length, X-rays are only about 1/50,000,000 of an inch in wave length. They vibrate with correspondingly increased frequency; hence, while light waves will be "snuffed out" or absorbed in passing through certain materials, X-rays, because of their extremely small dimensions, pass literally through the atoms themselves.

It follows from this that X-rays will pass through a substance in proportion to the weight of the atoms making up the substance; hence, while X-rays will pass through flesh quite easily, this being made up of light atoms like hydrogen, oxygen and carbon, they are not so readily transmitted by the bones which contain heavier atoms like phosphorus and calcium.

X-rays are generated when a high voltage is passed through a specially constructed vacuum tube into which two terminals have been sealed. When electrical charges from one terminal, called the cathode, strike the other terminal, called the anode, while traveling at high velocity, at the instant each particle strikes, an X-ray impulse is liberated. The action is very similar to that of striking a piece of iron with successive hammer blows until it becomes white hot and liberates light.

An X-ray outfit, then, must include, in addition to a tube, a means of generating and controlling high voltage. This is usually accomplished nowadays by the use of the transformer, which is so constructed that it will take a certain quantity of electricity of the usual voltage of the house circuit (about 110 volts) and increase it or "step it up" to a high voltage of about 50,000. The total amount of power, of course, is the same in both cases.

Radiographs are made by inserting the object in between a photographic plate and an X-ray tube. The photographic plate is usually contained in a light-proof envelope. The resulting negative is practically an "X-ray shadow" of the material interposed and

A NORMAL HAND

must be developed in the dark-room in the same manner as an ordinary negative made in a Kodak.

By this method surgeons are now enabled to diagnose and study such deep-seated disturbances as cancerous growths, diseases of the spine and abnormal conditions of the head or other parts of the body.

X-rays are also becoming one of the greatest helps to modern dentistry. Small outfits may now be secured which will satisfactorily take negatives of the teeth, on a small sheet of film inserted in the mouth, enabling the dentist to see exactly the conditions at the root of the tooth and determine if it has been properly treated.

Considering the wonderful strides that have been made in the short time since the rays have been used, it is only logical to conclude that the next generation will see even more wonderful possibilities opened up.

A SUMMER IDYL
Made with a Kodak

THE LILY POND
Made with a 3A Folding Kodak

"DOWN TO THE

A IN SHIPS"

A PICTORIAL LOG
OF
VARIOUS
EXCURSIONS
WITH THE
KODAK

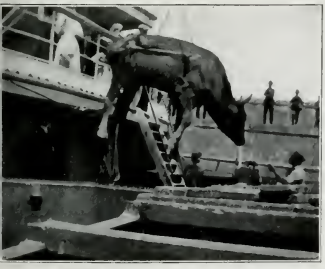


Fig. 1
Print from Negative Before Intensification with Pyro

INTENSIFYING NEGATIVES WITH PYRO

In our May number we directed attention to the stain image which is embedded with the silver image in pyro developed negatives, and we pointed out that the influence which this stain image has on the printing quality of the negative is as important as that of the silver image.

Since in a pyro-developed negative the stain image is a duplicate of the silver image, and acts as an intensifier of the silver image, it is apparent that it should be possible to intensify a negative with pyro if the depth of the color of the stain image could be increased after the negative has been developed, fixed and washed. Repeated experiments have demonstrated that this can be done.

A negative that is to be intensified with pyro must first be placed in water, left there for about half an hour, and then bleached in the following solution:

Water	16 ounces
Potassium Bromide . .	75 grains
Potassium Ferricyanide .	½ ounce

It must be left in this bleaching bath until the entire image has bleached, clear through to the base of the emulsion. The easiest way of determining when the image is entirely bleached is by using the bleaching bath in a white enamel tray, and, after the emulsion side has turned white, turning the negative over and allowing the bleaching bath to act until no dark tones can be seen in the image on the back of the negative.

The negative must then be washed for about 20 minutes in

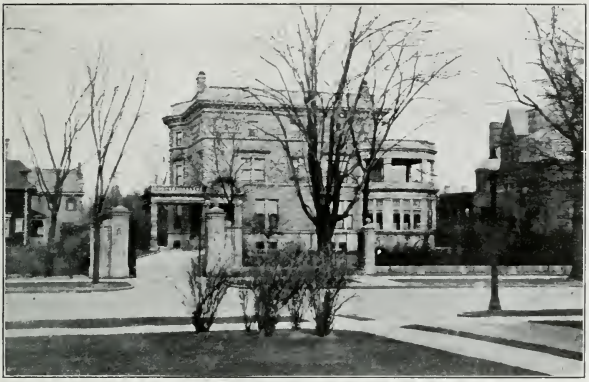


FIG. 2
Print from Negative After Intensification with Pyro

running water, or, if running water is not available, for 20 minutes in six or more changes of water in a tray. After it has been washed it must be exposed to a strong white light. A few seconds exposure to strong daylight is sufficient, but if artificial light is used the exposure should be, say, half a minute to a 60 watt mazda or a Welsbach gas lamp, holding it close to the light.

Unless the negative is exposed to a strong white light after it has been bleached it cannot be re-developed, for the reason that the red prussiate of potash dissolved the metallic silver, which then united with the bromide of potash and formed silver bromide.

In re-developing the negative we change this silver bromide back to metallic silver, but this can only be done after the silver bromide has been acted on by light.

While the red prussiate bleacher acts on the silver it does not affect the pyro stain, and by re-developing the negative with pyro we restore the original silver deposit and also add more color to the stain.

Any pyro developer that does not contain an excess of sulphite of soda will materially deepen the color of the pyro stain when the negative is re-developed.

Both of our illustrations were made on the same grade of paper. Fig. 1 shows the print obtained from a negative that was originally developed with pyro, and Fig. 2 shows the print obtained from the same negative after it had been bleached and then re-developed with one of the powders prepared for use in the 3½-inch Kodak film Tank. This, like all the powders made for use in the Kodak and

Premo Film Tanks, is a pyro powder.

This powder was dissolved in only seven ounces of water, making a rapid acting re-developer. Nothing is gained by re-developing slowly with a dilute developer, as all that re-developing does is to blacken the silver, and, the only silver available is that which was blackened in the first development which made the latent image in the film visible.

Any negative that lacks contrast can be re-developed and thus intensified, with pyro, no matter with what kind of developer it was originally developed.

It must be borne in mind, however, that intensification will not add detail to a negative. All it can do is to increase the contrast between the tones of a negative, so that after intensification the negative will make prints that will have deeper shadows together with stronger highlights than could be obtained in any prints made from the negative before it was intensified. Nothing can be gained by intensifying a negative that is fogged (gray instead of transparent in the deepest shadows) because this fog consists of silver, and by intensifying this silver the fog is made denser. The only negatives that can be materially improved by intensification are those that are free from fog and were underdeveloped. After negatives have been intensified they should be thoroughly washed.

THE FUNNY SHEET
Made with a Pocket Premo

AT THE SPINNING WHEEL
Made with a 3A Folding Kodak

Two pictures made simultaneously with the same camera, each receiving same exposure and development. The left hand picture shows effect of sun shining on lens

FOGGING THE PICTURE WHILE MAKING THE EXPOSURE

WHEN making pictures against the light, with the chief source of light directly in front of the camera, or in front and to one side of the camera, the lens should always be shaded so that as much as possible of the light that is not reflected from the subject will be prevented from reaching the lens.

The light that makes the picture is that which the subject reflects to the lens, and all other light which enters the lens is of no benefit whatever to the picture.

Nothing is more fatal to good results than strong sunlight shining on the lens during the period of exposure. It will fog the picture every time.

The effect which sunlight, shining on the lens while the film is being exposed, has on the finished picture, may be compared with the effect it has on our vision when we view a landscape with the sun shining in our eyes; and the effect which shading the lens, so as to keep the sunlight out, has on the picture, may be compared with the effect which shading our eyes to keep the sunlight out has on the clearness with which we can see the landscape.

The facts we have stated are well known to all experienced photographers, but probably few have seen as exact a comparison of the results obtained when sunlight does, and when it does not, shine on the lens as is shown by our illustration.

The two pictures composing this illustration were made with a Stereo Kodak—a camera which has two lenses in a double shutter which simultaneously makes two exposures on adjoining sections of the film. Both negatives received exactly the same exposure, with the same stop, and, as they were developed together in the tank,

both received exactly the same development.

The Kodak was placed on a tripod for making the exposure, the lenses were stopped down to 64 and a 20 minute exposure given. After the shutter had been opened the writer left the Kodak to attend to some other work. On returning, just before the expiration of the 20 minute period, he noticed that sunlight was coming through a window near the camera and was shining on one of the lenses.

It is evident that the sunlight did not shine on the lens for more than a few moments during the time the shutter was open, because only a narrow line of sunlight could be seen touching the margin of the lens, at the time the shutter was closed.

A comparison of these two pictures will show the importance of always shading the lens when strong front or side light is apt to shine on it.

When making pictures of sunrises and sunsets it will, of course, be impossible to keep the strong front light out of the lens, but such pictures should only be made when the sun is behind clouds or is seen through a yellowish or reddish haze. A safe rule for this kind of work is, never to include the sun in the picture unless it is possible to look steadily at it without discomfort, and then to stop the lens to 16 and give an exposure that is not slower than 1/50 of a second. With fixed focus cameras the exposure may be a snapshot with the next to the smallest stop.

No matter what kind of camera is used, or whether it is used on a tripod or is held in the hands, the lens can always be shaded by holding something a short distance in front of it, in such a position that it cannot be seen in the finder, so that it will cast a shadow on the lens.

ALERTNESS
Made with a 3A Kodak

A "CLOSE-UP" OF THE GALLS FROM WHICH PYRO IS OBTAINED

HOW PYRO IS OBTAINED

All who are close observers have often seen swellings or excrescences on the branches of some species of trees. These growths are hard and have a rough surface.

Whether found on fruit or shade trees, on the trees of the field, the trees of the forest, or on the rose bushes in our dooryards, they are all due to the same cause—the puncturing of the branch by an insect, which deposits an egg in the soft tissue which underlies the bark.

The insect wounds the tree and introduces an unwelcome guest into the wound. In seeking to repair the damage the tree builds a prison around the intruder, which happens to be just what the intruder needs, for after it has hatched from the egg the material of which the prison is composed supplies it with food until it has attained a certain stage in its development, after which it cuts through the prison wall and rounds out its life in the open air.

These excrescences are known as galls, and when they are especially rich in tannin, as are those on the oak and the sumach, they have a commercial value.

For many years these galls have been exported from Asia Minor and the East Indies. At the present time large quantities are also being shipped out of China, and it is from these galls that pyro, which has those peculiar properties, possessed by no other developing agent, to which we directed attention in the May KODAKERY, is made.

In the manufacture of pyro the galls are ground and are then placed in water, in large vats, where they are allowed to ferment for several weeks. After the alcohol,

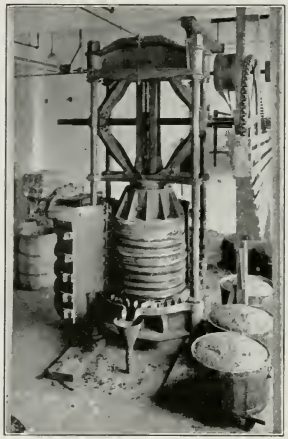
acid and other products of fermentation have been removed by applying pressure, in a press that somewhat resembles an ordinary wine press, the residue is transferred to tanks where it is dissolved in boiling water. The liquid thus obtained is drawn off, boiled down and cooled, gallic acid crystals being formed as the temperature lowers.

After the crystals have been separated from the liquid they are again placed in water and boiled under pressure, the gases that form during this boiling process escaping through safety valves that are provided for the purpose.

The mixture is then placed in drying pans and after all the moisture has been evaporated the

GALLS AND MACHINE IN WHICH THEY ARE GROUND

VATS IN WHICH GALLS ARE FERMENTED



residue is working in jacketed stills to obtain the pyro crystals.

The crystals that are taken from the stills are in large lumps which are ground to form the crystal pyro that is furnished by Kodak dealers.

Before the war most of the pyro that was used here was manufactured in Europe, but during the war it became evident that America must either manufacture pyro in large quantities or get along with the restricted supply that Europe would be able to furnish.

Pyro is only one of the essential chemicals that the war made scarce and expensive. To meet this

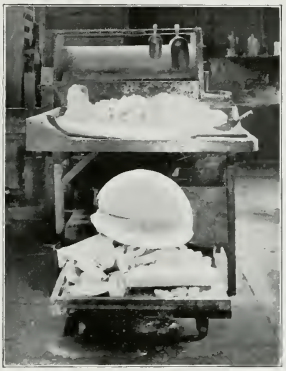
On the left, Press used in Extracting Liquor from Galls after Fermentation. Below, in background, Cooling Tank in which Gallic Acid Crystals are Formed.

emergency the Eastman Kodak Company enlarged its chemical plant to include the manufacture of pyro and produce it, in spite of great difficulties, in exceptional purity and at a price that was low compared with the cost of other developers.

The present output of pyro at the Kodak Park Works is more than 15,000 ounces per week, and with additions that have again been made to the plant this output will be doubled.

Eastman Crystal Pyro is, as its name indicates, pyro in crystal form. It has, grain for grain, the same strength and consequently the same developing power as the older form of re-sublimed pyro, but, unlike the latter, it will not fly about like dust and settle down, where it might come in contact with films and prints.

It is one of the Kodak Tested Chemicals and it is the pyro that is used in the Kodak and Premo Tank Powders.



CRYSTAL PYRO READY FOR GRINDING

TRAVELLERS IN MONTENEGRO
Made with a 3A Kodak

SERVICE DEPARTMENT TALKS

PREPAREDNESS

SUMMER is at hand and every camera, even the one that may have done but little work during the winter, will soon be busy.

If your camera was idle during the winter months the lens will need cleaning. The best way to clean it is to dust it with a camel hair brush, then breathe on the lens and wipe it with a clean linen handkerchief that has been made soft by repeated laundering.

Should there be dust inside your camera remove it, or it will settle on the film and make transparent spots (pinholes) in the negatives.

If you are using an old-style Kodak that has no Autographic Back your dealer can transform it into an Autographic Kodak, provided it is one of the following models: No. 1 Junior, No. 1A Junior, No. 1A R. R. Type, No. 1A Special, No. 3 Folding, No. 3 Special, 3A Folding, 3A Special, No. 4 Folding, No. 4A Folding.

With an Autographic Back fitted to one of these models you can write the date, and such other facts as you desire to record, on Autographic Film immediately after making the exposure.

Should your camera have suffered any injury it may need the attention of the makers. In this case have your dealer send it to the makers without delay so that it may be put in perfect working order and be ready when you need it.

Do you meet with any problems in your photographic work that you cannot readily solve? We will be glad to help you solve them, free of charge.

Address all Communications,

SERVICE DEPARTMENT, CANADIAN KODAK CO., LIMITED,

TORONTO, CANADA.

The KODAK ANASTIGMATS

f.7.7 *f*.6.3 and *f*.4.5

Each Kodak Anastigmat is fashioned to conform to a master glass that is really another lens of equal but opposite curvature. The master glass represents the perfect optical curve and the lens must fit it exactly—*exactly*.

The test to determine when this result has been secured is a very delicate and very pretty operation. If, when the expert brings the lens into contact with the glass, vari-colored light rings appear, some slight difference in curvature must exist. Even though this difference may be infinitesimal, the light rings flash their warning.

It is only when careful readjustment on the polishing machine has successfully corrected this error and the absence of light rings proves this fact, that the lens is good enough to become a Kodak Anastigmat.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

JULY 1920

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.

YOU can make pictures of YOU—with a

KODAK SELF-TIMER

Price, $1.50

YOU set this cleverly conceived device and then take up your position in front of the lens. A second later—or even three minutes later, according to adjustment, the familiar "click" tells you that the exposure is made.

With a Kodak Self Timer, not only are self-portraits possible but everybody can be in the group.

The cable release, the equipment on all the new model Folding Kodaks, is a necessary adjunct to the operation of the Timer. Older models regularly furnished with the Kodak Automatic Shutter, the Kodak Ball Bearing Shutter, the Compound Shutter or the Optimo Shutter may be equipped with the cable release at small cost.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

THE CALL OF YOUTH
Made with a 2C Kodak, Jr.

KODAKERY

A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 60 CENTS; SINGLE COPIES, 5 CENTS

VOL. VII JULY, 1920 NO. 9

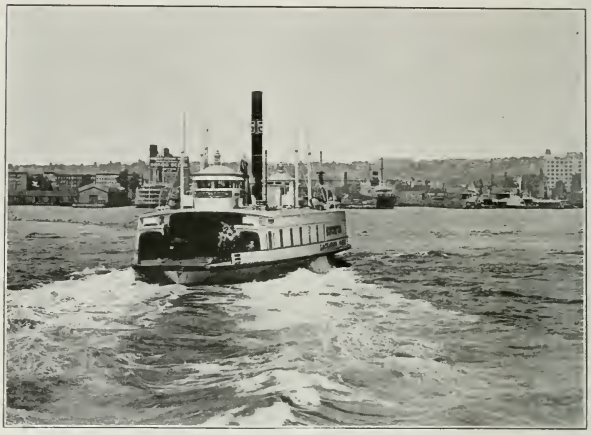
GROUP ONE

When all the objects of interest in a landscape are more than 500 feet from the camera the subject should be classed as an extremely distant landscape

THE EXPOSURES TO GIVE FOR OUTDOOR SUBJECTS

The rectilinear and anastigmat lenses that are fitted to Kodak, Premo, Cycle, Graphic and Brownie cameras are always mounted in shutters. The various speeds at which these shutters work, and the various stops with which the lenses are equipped are marked on the front of each shutter.

The speed markings, and also the stop markings, on the various sizes and kinds of shutters to which rectilinear and anastigmat lenses are



GROUP ONE

A white vessel under brilliant sunshine, well out from the shore, may safely be classed as a "Marine"

fitted are necessarily different. All of these shutters have, however, speed markings of 25 and 50, which represent exposures of 1/25 and 1/50 of a second, and they all have stops marked 4, 8, 16 and 32 or, stops marked f.7 or 8, 11, 16 and 22.

Experience has convinced us that a simple exposure table, which solves the outdoor exposure problem by recommending the use of a single shutter speed and only a few stops, is much more valuable for a beginner in photography than a table that refers to all the shutter speeds and all the stops that the shutter may have. The other shutter speeds and stops are of value for kinds of work that will be referred to in future numbers of KODAKERY, *but they can be ignored by the beginner who wishes, first of all, to learn the simplest way to get good results, with ease and certainty, in ordinary outdoor work.*

The photographer who uses a rectilinear or an anastigmat lens, and prefers, at times, to use these other stops and other shutter speeds in his outdoor work can quickly determine, by referring to the article on page 22, entitled, "The Relation Between Shutter Speed and Lens Stop," which other shutter speeds must be used with other stops to secure the same relative exposure as is secured with those that the table recommends.

The first table in the following article applies to all cameras that are fitted with rectilinear or anastigmat lenses.

GROUP TWO

Unless the air is very clear, and the sunlight unusually bright, a dark-colored vessel, not more than 200 feet away, should be classed in Group Two

The second table applies to all fixed focus, single lens cameras (like the box type of Brownies and Premos) that have but one shutter speed. It will be noted that in the following tables we have ignored all fine calculations, and have also ignored the fact that an exposure that would be absolutely correct at noon of the same day, but (and here is the reason why the exposures recommended in these tables yield good results under widely varying conditions) the latitude of Eastman film is so great that a very considerable overexposure can be given without injuring the printing quality of the negative.

NEARLY all of the outdoor subjects that we ordinarily photograph during the daylight hours may be classed in four groups, and, as the exposure that each group requires is easily memorized, the outdoor exposure problem can be reduced to the single question of determining in which group the subject belongs.

By examining our illustrations, each of which bears the number of the group in which it is classed in the accompanying exposure tables, it should be easy for the photographer to decide in which group the outdoor subject he wishes to photograph does belong, then, by giving the exposure recommended in the table that applies to the kind of camera he is using, a negative can be made from which good prints can be obtained.

The exposures recommended are neither the shortest nor the longest that will give good results with Eastman Film, the latitude of which is so great that it will take

GROUP TWO

This subject is classed in Group Two because the greater part of it received the direct light from the sky

GROUP THREE

In street scenes there are always more dark than light tones

GROUP THREE

A nearby landscape scene, showing little sky. Note that in this picture the greater part of the subject is shaded. Dark tones predominate, while in the picture on the opposite page the greater part of the subject receives the direct light from the sky

care of any reasonable errors in exposure. They are averages that have been obtained from a comparison of thousands of exposures and they are as good for use on sunny days in winter as on days of summer sunshine.

When the day is cloudy bright the exposures should be from two to three times as long, and when the day is dull the exposure should be from four to eight times as long, as those mentioned in the tables.

OUTDOOR EXPOSURE TABLE FOR CAMERAS THAT HAVE RECTILINEAR OR ANASTIGMAT LENSES

For 2½ hours after sunrise until 2½ hours before sunset on days when the sun is shining

	Shutter Speed	Rectilinear Lenses Stop	Anastigmat Lenses Stop
GROUP 1—Snow, Marine and Beach Scenes—Extremely Distant Landscapes .	1/25	32	22
GROUP 2—Ordinary Landscapes Showing Sky, with a Principal Object in the Foreground	1/25	16	16
GROUP 3—Nearby Landscapes showing little or no sky—Groups, Street Scenes,	1/25	8	11
GROUP 4—Portraits in the Open Shade, not under Trees or the Roof of a Porch—Shaded Nearby Scenes .	1/25	4	7.7 or 8

GROUP FOUR

In making snapshot portraits out of doors, be sure there is no roof or tree top above the subject

OUTDOOR EXPOSURE TABLE FOR FIXED FOCUS BOX CAMERAS THAT HAVE SINGLE LENSES

For 2½ hours after sunrise until 2½ hours before sunset on days when the sun is shining

GROUP 1—Snow, Marine and Beach Scenes—Extremely Distant Landscapes, Snapshot with Second Stop

GROUP 2—Ordinary Landscapes Showing Sky, with a Principal Object in the Foreground . . . . . Snapshot with Largest Stop

GROUP 3—Nearby Landscapes showing little or no sky—Groups, Street Scenes . . . . . Snapshot with Largest Stop

GROUP 4—Portraits in the Open Shade, not under Trees or the Roof of a Porch—Shaded Nearby Scenes . 1 second with Third Stop

To make a time exposure with a fixed focus Brownie Camera draw out the time slide to "F," and, with a fixed focus Premo, move the time lever over to "T." It takes two movements of the shutter lever for making a time exposure—one pressure for opening the shutter and another for closing it.

It takes about one second to mentally pronounce "One hundred and one."

GROUP FOUR

Cloudy-bright days, when no sharply-outlined sun shadows can be seen, are ideal for outdoor portraiture

THE DATE ON THE FILM

WASTE no opportunities. When you make pictures be sure that your film is fresh. If you make a bad print you can throw it away and make another. When you make a bad negative you may have wasted an opportunity that will never come again. Take no unnecessary chances. As a safeguard to photographers, an "expiration date" is put on all Eastman Films, and no film should be put to important use after such date. Because films which have been kept under proper conditions are often good long after the expiration date, some people get careless about this matter of fresh film and sooner or later disappointment follows.

Remember, too, that film will deteriorate between the time of exposure and the time of development even more rapidly than before exposure, owing to the fact that in the process of passing through the camera it is exposed to air and moisture as well as to the light that comes through the lens at the instant of exposure. In hot, damp climates, especially, it will take up moisture very rapidly and there's then only one safe thing to do—develop promptly. It does no good to wrap it up or put it away in a tin box, for the moisture is now in the film and the box acts like a fireless cooker in retaining the moisture.

Before development, whether exposed or unexposed, film should be kept in a cool, dry place.

Always be sure films are fresh when you purchase them, and develop them or have them developed as promptly as possible after exposure.

WHEN SUMMER DAYS COME
Made with a No. 1A Kodak, by William Bushy

THE PICTURE STORY OF THE OWL AND THE CROWS
A successful instance of Mouse Trap Self Portraiture

WE GRAFLEX A MOB SCENE IN BIRDLAND

BY HOWARD TAYLOR MIDDLETON

Illustrated with a Graflex Picture by the Author

It is common knowledge among authorities on birds that the crow delights, above all other recreations, in tormenting an owl. When he is fortunate enough to find Screecher abroad in the daytime, he immediately takes advantage of the night bird's being unable to see

well in daylight, to pick on him. The fact that Screecher is helpless and cannot fight back appeals to Black Jim's sense of humor.

Marie and I, in our numerous cross-country hikes after pictures, have caught James red-handed at his favorite sport, and often discussed the possibility of recording such a scene photographically. Ever since adopting the mouse trap method of self portraiture (already described in detail in the June KODAKERY), we have been most eager to try it out on Corvus and Screecher.

The chance came when we found an owl with his head out of a hole in a dead chestnut trunk. The aperture was just large enough to admit Marie's slender fist, and, although Screecher protested strenuously with much sputtering and beak-snapping, he was hauled forth and carried to our "studio" in a clearing a few yards distant. There he was deposited upon a limb and requested to remain until the arrival of his tormentor. This required no persuasion on the part of the photographers as he promptly assumed the role of a fluffy feather ball and fell fast asleep.

We did not anticipate much difficulty in attracting Corvus to the scene as we had been baiting the place with corn, and had already procured several crow portraits in the same locality.

Now, to set our Graflex mouse trap. First, the camera was placed upon a sturdy tripod (the ground was frozen too hard to drive a stake), and focused upon the sleeping owl. Then the trap, clamped to its substantial base, was placed beneath the Graflex, and threads attached, one leading from the pedal of trap to the limb upon which Screecher slumbered, by way of an overhead branch; the other from loop of trap to camera release. This arrangement left a thread suspended above Screecher in such a manner that a crow while flying to and fro in the enjoyment of his unsportsmanlike game, could not fail to hit it. This touch upon the thread meant an action picture: As the pull came upon the pedal, the trap would spring, which in turn would release the shutter of the Graflex.

Retreating to a distant hill top, we watched through our binoculars, and, as anticipated, it was a very little while before two sable aviators separated themselves from a squadron winging overhead, and headed straight for Screecher. One settled on a limb near his victim, while the other swooped on the owl from above, cawing loudly the while. The exhibition lasted just a moment, then both the bullies sprang upward, as though urged by a load of shot, and departed across the fields to be seen no more.

Screecher, who had been momentarily awakened and annoyed, snuggled once more into slumber, and it was thus we found him when we returned for our camera outfit. We also found the thread broken, and mouse trap and camera shutter sprung—we had Graflexed a mob scene in birdland.

We returned Screecher to his home hole with tender care, none the worse for his exciting experience.

As I write these lines, his shivering cry, a low wailing whistle, comes to me from across the ice-bound Rancocas. Here's to you,

WHEN KNIGHTHOOD WAS IN FLOWER
Made at Chartres, France, with a Premo Camera; stop 16; 1/10 sec.

Screecher! We trust you will enjoy the banquet of mice we left at your front door, and, furthermore, it is our earnest wish that you live long to aid us again in the making of a great picture.

MIXING THE PYRO DEVELOPER

THE pyro developer that is used for developing films is composed of pyro, sulphite of soda, carbonate of soda and water. The pyro is the developing agent, the carbonate is the energizer or accelerator and the sulphite is the preservative.

The function of the developer is to convert into metallic silver the silver salts on which the light has acted; but neither pyro nor any other developing agent, when used alone, can do this. Nearly all developing agents must be in an alkaline solution, in order to be efficient, and the alkali that is most generally used is carbonate of soda.

Water contains air and air contains oxygen. Pyro, like all other developing agents, has an affinity for oxygen, and when pyro is dissolved in plain water it absorbs the oxygen from the air that is in the water. Since the energy of pyro is increased when it is in solution with carbonate of soda it would quickly spoil if there was nothing but pyro and carbonate in the developer.

THE BIG FELLOW AND THE SMALL FRY
Made with a 3A Folding Kodak, by H. L. Vail

When sulphite of soda is added to the developer it acts as a preservative of the pyro, because like pyro, it has a great affinity for oxygen, and as a well-balanced pyro developer always contains much more sulphite than pyro the sulphite absorbs the greater part of the oxygen, so that the pyro can perform its function before it becomes too much oxidized.

In mixing the pyro developer it is, therefore, important to protect the pyro against excessive oxidation by dissolving the sulphite and the carbonate before adding the pyro to the solution.

The pyro developer not only develops the silver image but also deposits a stain image in the negative, and as this stain image is an oxidation product the developer should not be used a second time.

All the Kodak and Premo tank powders contain two packages of chemicals. The sulphite and carbonate are in the thick package and the pyro is in the thin one. By thoroughly dissolving the contents of the thick package first, then adding and thoroughly dissolving the contents of the thin one, and using the developer promptly after it is prepared, you will have a developer that has not been weakened by oxidation.

GETTING READY FOR THE LAUNCHING
Made with a No. 8 Premo at 6 P. M., September; stop 16; 1 sec.

FROM A KODAK

FIG. 1
Twenty minutes after sunset; stop f.11; 1-25 sec.

OUTDOOR SILHOUETTES

As we look across the landscape on a moonlight night and observe the shadow side of dark-toned objects, they appear to be black or very dark. When these objects are outlined against the sky the only well-defined lines we can see in them are their outlines, and these are conspicuous solely because they are silhouetted against a well-lighted background.

Such silhouette effects as we see by moonlight can be recorded by the camera, but we can get better results, in less time, if we photograph them before night begins, than if we picture them by moonlight. They can be made, at any hour of the day, when the necessary conditions are present.

These conditions are, a strongly lighted background, with a dark-toned object that is not strongly lighted, clearly outlined against this background.

The light conditions are sometimes favorable just before a storm during any of the daylight hours, and they are always favorable just before sunrise and just after sunset, on days when there are no dense, unbroken masses of clouds between the sun and the earth.

When the sun is far enough below the skyline of the landscape so that only that part of the sky which is nearest to the sun is brightly illuminated, the light on the landscape will be comparatively weak, and at this time which, in Canada, is from 45 to 60 minutes before sunrise and after sunset, silhouettes of the type shown

FIG. 2
Just before Sunset; stop 16; 1-25 sec.

in Fig. 1 of our illustrations can be made.

Figs. 2 and 3 show effects that can be secured during the hours of sunshine, when the sun is hidden behind banks of clouds, the edges of which it brightly illuminates.

Fig. 4 was made in hazy sunshine. The objects of interest were silhouetted against a bank of snow. Effects similar to this can easily be secured just after sunset, on a clear day in summer, if the objects of interest are outlined against the western sky.

A picture of the type of Fig. 5 can only be made shortly after sunrise or shortly before sunset, when the sun is partly hidden by clouds. The striking effect which the photographer obtained is due to the fact that he made the picture with the lens pointed across a body of water, from a viewpoint

FIG. 3
Made by Cora Pattee, at 3 P. M.; f.8; 1-25 sec.

FIG. 4
Made at 4 P. M.; f.11; 1-100 sec.

which placed the man's head between the sun and the lens.

The negatives from which all of our illustrations, excepting Fig. 1, were printed were developed in the regular way—20 minutes in the tank, with one tank powder, at a temperature of 65 degrees Fahrenheit. All of these negatives showed faint detail in the shadows, but, while all of the exposures were long enough for recording the lightest tones, they were not long enough for recording more than faint traces of the detail in the dark ones. As a consequence, everything below the sky was badly under-exposed and the negatives were, therefore, quite contrasty. The faint shadow detail that the negatives showed was not recorded in the prints because they were made on Contrast Velox, a paper that puts more contrast in the print than can be seen in the negative.

The negative from which Fig. 1 was printed was intentionally over-developed—in a film tank for 20 minutes, at a temperature of 65 degrees F. with *two* tank powders. This was done for the purpose of obtaining a very contrasty negative.

This latter method is recommended when the utmost contrast between the light and the dark tones is wanted.

The data under our illustrations suggest the exposures to give for silhouettes, with rectilinear and anastigmat lenses, at the hours stated.

With the single lenses that are fitted to fixed focus cameras, a snapshot is recommended, with the same stop that is ordinarily used for landscape work, in bright sunlight.

FIG. 5
Made by James O. Wilson, with a No. 3 Special Kodak, 5.30 P. M.; f. 32; 1-25 sec.

THE RELATION BETWEEN SHUTTER SPEED AND LENS STOP

THE stops with which photographic lenses are fitted regulate the amount of light that passes through the lens. A large stop allows more light to pass through the lens than a small one does, just as a large window allows more light to enter a room than a small window does.

The exposure that is needed for obtaining a correctly timed negative depends on the intensity or brilliancy of the light that reaches the film. Since the size of the stop affects the volume of the light that passes through the lens it is evident that the smaller the stop the longer must be the exposure.

There are two systems of marking lens stops: The U.S. (Uniform System) is ordinarily used on rectilinear lenses, and its markings are based on the relation between the *area* of the stop and the focal length of the lens, while the *f.* system is in practically universal use on anastigmat lenses, and its markings are based on the relation between the *diameter* of the stop opening and the focal length of the lens.

Different numerals are used for expressing the relative values of the stops in these two systems, but in both systems all stops that bear a higher number than U.S. 4 or *f*.8 admit just half as much light as the next lower numbered stop. This means that for all higher numbered stops the exposure must be doubled when the stop indicator is moved from any one stop number to the next higher number, and must be halved when the indicator is moved from any stop number to the next lower number. To illustrate; should the correct exposure be 1/25 of a second with stop 16 it would be 1/50 of a second with stop U.S. 8 or *f*.11, and 1/12 of a second with stop U.S. 32 or *f*.22.

The numerals used for marking the stops in the U.S. and *f.* system are listed in the first two columns of the accompanying table.

In the third column the values of these stops are compared with the exposure value of *f*.8 (U. S. 4), which is the largest stop on rectilinear lenses.

The last column translates these values into actual exposure fractions, taking 1/25 of a second with stop 16 (the usual exposure for ordinary landscape subjects in sunlight) as a standard.

Lens stops that are marked 4.5, 5.6, 6.3 and 7.7 are only used on anastigmats.

No photographic shutter has all the speed markings listed in the last column; but the correct exposure can always be given by using the stop that the available shutter speed calls for.

COMPARATIVE STOP VALUES.

f.	U.S.	Relative Exposure	Comparative Exposures
4.5	1.25	.3	1/330
5.6	2	.5	1/200
6.3	2.5	.6	1/160
7.7	3.7	.9	1/110
8	4	1	1/100
11	8	2	1/50
16	16	4	1/25
22	32	8	1/12
32	64	16	1/6
45	128	32	1/3

A SOUVENIR OF SNOW TIME
Made with a 3A Folding Kodak

FIG. 1
Under-Exposed, Correctly Developed

THE DIFFERENCE BETWEEN UNDER-EXPOSURE AND UNDER-DEVELOPMENT

A NEGATIVE that lacks density is one which has a comparatively thin deposit of metallic silver. The thinness of this deposit is always due either to under-exposure, to under-development, or, to both under-exposure and under-development.

Can you tell, by examining such a negative, which of these causes is responsible for its lack of density?

Though a correct diagnosis can easily be made it is one which few but experienced photographers know how to make with certainty.

The effects which under-exposure and under-development produce are very different. An under-exposed negative always has too little *detail* in the shadows and frequently too little in the half-tones, while an under-developed negative always has too little *contrast* between the highlights, halftones and shadows, though it may have plenty of detail in all of these tones.

When a negative that lacks density is held before a strong light, and is examined by looking through it, we can rarely see all that the negative contains. This makes it difficult to determine whether it was under-exposed or under-developed; but when a sheet of opal glass or ground glass is placed between the negative and the light we can see everything that is in the negative and can tell with certainty whether it was under-exposed or under-developed.

The difference between under-exposure and under-development is graphically shown by Figs. 1 and 2 of our illustrations. These are

FIG. 1A
Amply Exposed, Correctly Developed

halftone reproductions which, of course, cannot show us all the tones that we could see by looking through the negatives.

It will be noted that in Fig. 1, which represents an under-exposed but correctly developed negative, the sky part of the negative

FIG 2
Fully Exposed, Under-Developed

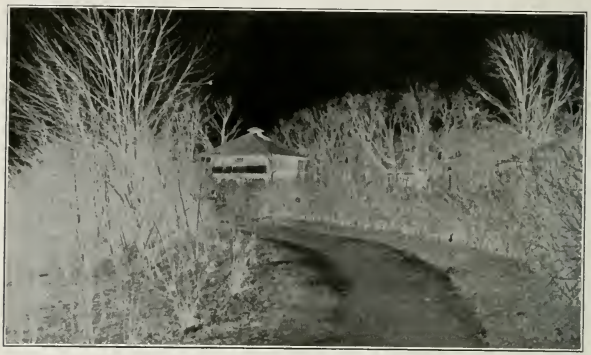


FIG. 2A
Fully Exposed, Correctly Developed

appears to be nearly as dense as in Fig. 1A, which represents a correctly exposed and correctly developed negative of the same subject. The density of the sky in Fig. 1 demonstrates that the lack of detail in the shadows is due to *under-exposure,* for, had it been due to such extreme under-development as would have been capable of causing this lack of detail, the sky could not have acquired such density as the negative shows. Prolonging the development of an under-exposed negative beyond the point of correct development is useless, for it is impossible to develop any image from silver salts on which the light has not acted long enough to record an image.

The *under-developed* negative, Fig. 2, contains practically the same amount of detail as Fig 2A, the correctly developed one of the same subject. The difference between these two negatives is that the correctly developed one contains ample detail and also ample contrast, while the under-developed one contains ample detail, but does not contain ample contrast.

No print that shows detail in the shadows can be made from such a negative as is shown by Fig. 1, on any grade of paper, simply because there is no shadow detail in the negative. Perhaps the best that can be done with a landscape negative of this type is to make a print that will emphasize what can be seen above the skyline of the landscape silhouetted against the sky.

No print that contains ample contrast can be made on a soft grade of paper from such a negative as is shown by Fig. 2, because there is not enough contrast in the negative, though an under-developed negative will make a print on Contrast Velox that will show a pleasing range of contrast,

providing the negative is not too badly under-developed.

But, while Contrast Velox will make good prints from negatives that were considerably under-developed we should guard against making under-developed negatives.

A correctly developed negative is preferable to an under-developed one because from a correctly developed one we can make far better enlargements and lantern slides than from one that was under-developed. The destiny and the contrast of an under-developed negative, that is free from fog, can be increased by intensification, but there is no known way of materially improving an under-exposed one.

By developing your negatives in a tank (Kodak Film Tank for roll films and Premo Film Pack Tank for film pack films) in accordance with the instructions that are furnished with the tank, you will be sure of getting correctly developed negatives.

Should you sometimes be in doubt about the exposure to give for outdoor subjects it will be well to carry a copy, made on a card, of the exposure table that is intended for the kind of camera you are using. The table on page 7 applies to all cameras that have rectilinear or anastigmat lenses, and the one on page 8 applies to all single lens, fixed focus cameras.

By working in accordance with these instructions you will avoid making under-exposed negatives.

ON LAKE LEMAN

Made with a No. 3 Folding Pocket Kodak

SERVICE DEPARTMENT TALKS

GETTING CLEAR NEGATIVES

THE photographer who develops films in a tray and obtains negatives that have gray instead of transparent margins should test his darkroom and the light by which the negatives were developed.

Gray margins mean negatives that are fogged all over, and from such negatives it is impossible to make really good prints.

Fogged margins can be produced by three causes—an unsafe darkroom, an unsafe darkroom light or a wholly unsuitable developer.

To test the darkness of the room, remain in it for about three minutes while it is closed and all lights are turned off. If at the end of this time you can see light entering the room, close the openings through which it comes.

To test the darkroom lamp, first make sure that the room is light-tight, and then, in total darkness, place an unexposed film in a printing frame and cover one-half of the film with black paper. Turn on the darkroom lamp and place the frame at the same distance from the lamp that the developing tray is placed during development, leaving it there for five minutes. Develop this film for five minutes, in total darkness, then place it in the fixing bath.

If, after the film is fixed, no difference can be detected between the part that was covered and the part that was left uncovered, your light is safe. If one part is darker than the other your light is not safe.

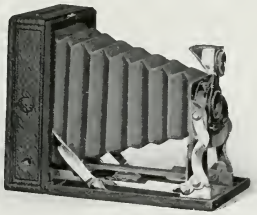
If the entire film is gray you are getting chemical fog, which is caused by an unsuitable developer. In this case, write to us at once, sending the fogged test film, together with the formula for the developer you are using. If you use a developer preparation tell us its name and how you mix it for use.

The surest way to avoid both chemical and light fog is to develop negatives in a tank, according to the instructions that are furnished with the tank.

Address all Communications,

SERVICE DEPARTMENT, CANADIAN KODAK CO., LIMITED,

TORONTO, CANADA.



The Pocket Premo

DRAW down the bed, and the lens snaps rigidly into focus. The shutter is set ready for use. This quick action means you can get a lot of unusual and interesting pictures that might be lost if adjustment were necessary.

Still further simplicity is added with the use of the Premo Film Pack – combining film quality and convenience with the easiest loading device.

The 2¼ x 3¼ Pocket Premo pictures are large for so small a camera, but even larger pictures can be made from the negatives by enlargement.

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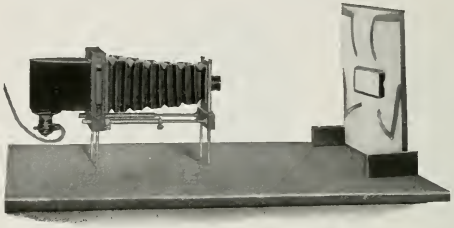

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An outfit complete in itself—camera, illuminator and easel—and all the space required is a table top. The camera will accept 4 x 6-inch negatives, or smaller, and large prints may be made to any size that the negatives, themselves, will permit. The easel furnished with the outfit, however, is 14 x 17 inches.

The outfit includes Enlarging Camera, lens and diaphragm, (largest stop, U. S. 4) easel, lamp-housing, light cord and plug, but does not include the 60-watt Mazda electric light bulb.

THE PRICE

Kodak Enlarging Outfit	$28.00
Lantern Slide Block	1.00
Portrait Attachment No. 5 . . .	.75

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A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

AUGUST 1920

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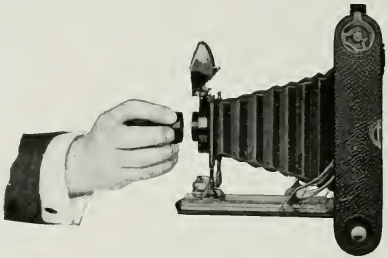

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It's called the Portrait Attachment because it makes possible head and shoulder studies that fill the picture area. But that is not all it can do.

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REEDS AND REFLECTIONS

Made with a No. 3 Folding Kodak

KODAKERY
A Journal for Amateur Photographers

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VOL. VII AUGUST, 1920 NO. 10

FIG. 1
A Moonlight Effect by Sunlight

MOONLIGHT DANCING ON THE WATER.

THE bright lights that we see reflected from the crests of waves or ripples, as we look across a body of ruffled water on a moonlight night, suggest that the moonlight is dancing on the water.

To make a photograph that will remind us of such a scene is so easy that it can be done by any one, with any kind of hand camera; but the picture cannot be made at night, for the reason that if we give a snapshot exposure by moonlight we will secure nothing but a record of the brightest lights that are in the subject, and, if we make a time exposure the waves or ripples will be blurred beyond recognition.

Since a time exposure will destroy the effect we wish to record,

Fig 2
A Time Exposure by Moonlight Photographed by W. H. Coleman at 10 P.M.

and since moonlight is not strong enough for recording it with a snapshot exposure, it is evident that we can only secure it by sunlight. And it is by sunlight that the photographs which most pleasingly suggest night are usually made.

Fig. 1 of our illustrations is typical of pictures we can make by sunlight, with a snapshot exposure, and Fig. 2 shows the result of photographing a similar kind of subject by moonlight, with a time exposure.

Fig. 1 tells us that the water was in motion. It shows images of the ripples on the surface of the water, and it conveys the impression that the moon was illuminating the scene.

Fig. 2 likewise shows that the water was moving, as is evidenced by the fuzzy edges of the band of light that the water reflects, but whether there were ripples on its surface cannot be determined with certainty. The writer is of the opinion there were none, but if ripples were there, their outlines were destroyed by their constant movement during the long time exposure that was needed for securing the picture.

Pictures of the type of Fig. 1 can be secured during the hour following sunrise and the hour preceding sunset. If the position of the sun is to be shown in the picture, the sun must be either wholly invisible or only faintly visible, or the entire film will be fogged by its rays.

The most striking effects can be secured when the sun is behind banks of clouds, the edges of which it brightly illuminates. If no clouds are present we can obtain a negative that is free from light-fog provided there is enough haze or dust in the air to permit our looking squarely at the sun without discomfort.

Pictures that are intended to suggest night scenes must contain more dark than light tones. When the camera is pointed across a small body of water, the water and the landscape beyond it will furnish some of the dark tones. If the body of water is so large that no prominent landscape features can be seen beyond it, then the water, and boats or some other objects in the foreground of the scene, will furnish some of these dark tones. The other dark tones that are needed

FIG. 3
Under-Printed. Does not show a Night Effect

FIG. 4
Correctly Printed. Does show a Night Effect

Made by Mrs. W. A. Miller with No. 2 Folding Brownie shortly before sunset; exposure 1/25 sec.; stop 8

must be in the sky. Any cloud forms that are not white will photograph dark enough for furnishing these.

While pleasing sunrise and sunset pictures can often be obtained when there are no clouds in the sky, yet the presence of clouds always adds to the beauty of landscape and water scenes.

For the kind of work we are discussing no color filter is needed.

When the air is clear and the clouds are gray the exposure recommended is 1/50 of a second with stop 32 (*f*.22 on anastigmat lenses) or a snapshot with the third stop on a fixed focus camera that has no stop marked 32 or 22; but, when there is dust or haze in the air and the clouds are tinted with yellow or red, the exposure should be longer—1/25 of a second with stop 16, or, with fixed focus cameras that have no stop marked 16, a snapshot with the second stop. That Eastman film permits of great latitude in exposure is demonstrated by Mrs. Miller's picture, shown above, which was obtained with an exposure of 1/25 of a second with stop 8 (*f*.11.)

The negative must be fully developed—for 20 minutes in the tank, with one tank powder, when the temperature of the developer is 65 degrees Fahrenheit, or, if it is developed in the tray, the development must be continued until the strongest lights appear quite black when the back of the film is examined by reflected light.

To tell the exact length of time to print is, of course, impossible, as

this depends on the density of the negative and the grade of paper used. If the print is made on Regular Velox, which is especially suited for this kind of work, the prints should be developed for 20 seconds, with the developer at 70 degrees F. If the print is too light or too dark after it has been developed for 20 seconds, the length of time to print, and not the length of time to develop the print, should be changed.

The effects obtained by underprinting and correctly printing are shown by Figs. 3 and 4.

These moonlight effects can be secured wherever sunlight can be seen dancing on the water. Ponds, rivers and even small streams will often furnish the setting for the scene.

A GLORIOUS "NIBBLE"
Made with a 2C Brownie

THE VALLEY

Made with a 3A Folding Pocket Kodak

WHEN YOU ARE A MEMBER OF THE GROUP

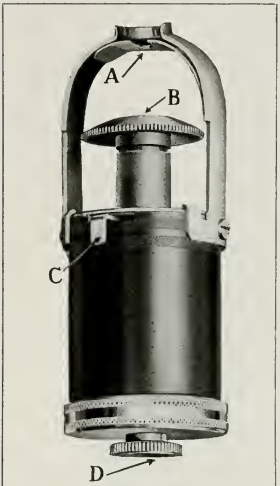

FIG. 1
The Kodak Self Timer

THE group picture is in a class by itself. Whether it is a photograph of a few or of many people and whether it was skilfully or carelessly made, it never fails to command the attention and call forth the comments of all who are acquainted with the people it portrays.

When we consider how rapidly fashion changes costumes, how time alters the stature and features of the young, and how diverging interests induce people to go their several ways and become widely separated, we will readily appreciate why group pictures are treasured by all who possess them.

How to make a picture of a group and also be included in the picture is a probelm that has confronted many camera users. This problem has been effectually solved by the Kodak Self Timer, a small attachment that can be used with any camera which has a shutter that is fitted with a cable release.

To make clear how the self timer operates the shutter we will refer to Fig. 1: A is a spring which

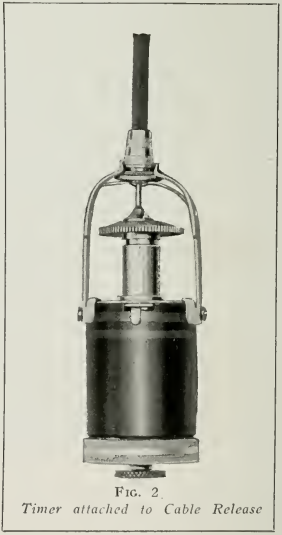

FIG. 2.
Timer attached to Cable Release

FIG. 3
Jack is starting the Self Timer by pressing the trigger

holds the flanged head of the cable release firmly in position in the slot at the top of the timer. B is a milled head, on the top of which is a dish-shaped depression into which the push button of the cable release fits. This milled head has a screw adjustment, which can be set so that the piston will move the push button of any cable release far enough for tripping the shutter. C is a trigger which locks the piston after it has been pushed into the cylinder to the limit of motion.

When all is in readiness for making the exposure a pressure on the trigger will release the piston, which then presses against the push button and thus operates the shutter (Fig. 2).

The speed at which the piston moves can be regulated by the screw D. This can be set so that it will take from about half a second to a few minutes for the timer to trip the shutter, after the piston has been released.

By setting the Screw D so that the timer will operate the shutter in from 30 to 45 seconds the photographer will have ample time for taking his position in the group after he has released the piston.

The Kodak Self Timer is intended for making automatic exposures only, that is, any exposure that is made with a single pressure on the push button of the cable release. The length of time the shutter is open when an automatic exposure is made is indicated by the speed markings on the shutter.

The speed at which the self timer works has nothing to do with the length of time the film is exposed. The timer merely trips the shutter, and the length of time it takes to do this can be adjusted by the screw D to suit the convenience of the photographer. The length of

FIG. 4

Jack has joined the boys — the Timer is working

time the film is exposed depends solely on the shutter speed that is used.

There are two kinds of group pictures—the portrait, which records likenesses, and the story telling, which records the occupations or pastimes of the subjects. Fig. 5, shown below, is a story-telling picture. It was made by

FIG. 5

The picture Jack made of himself and chums with the aid of the Self Timer shown on page 8

the boy who is kneeling at the left. Fig. 3 shows him starting the self timer. Fig. 4 shows that he has joined the group (the timer is working), and Fig. 5 shows the picture that he made, with the 3A Kodak and the Kodak Self Timer that are shown in Figs. 3 and 4, of himself and his chums.

The exposure recommended for group pictures is 1/25 of a second, with stop 8 (*f*.11), when the subjects are in sunshine. If the group is photographed in the shade, not under trees, but under the open sky, the exposure should not be shorter than 1/25 of a second with stop 4 (*f*.8).

HIS FIRST ATTEMPT AT CRICKET

Made with a No. 1 Kodak Junior

MOTHER AND HER FAMILY

A NOVEL EXPERIMENT.

Most of us like to experiment occasionally just for the novelty of the thing and, while there is an interest attached to the experiment itself, there is a much greater interest if the result of the experiment is a success and we can feel that we have really accomplished something worth while —something of some value to us.

Many photographic experiments are only waste of time, but there are those which insure the element of certainty in the result. Take, for example, the re-developing of a Velox or Bromide print. Those of us who have used the re-developing process know of the excellent results, but there is a very interesting experiment with re-developer which gives more startling and interesting results than would be imagined.

Local or brush re-development is the idea and it is not at all difficult, the important point being the selection of a subject which will give a pleasing effect when a part of the print has been re-developed. The best example I have seen is a print in which the point of greatest interest is a handsome Scotch collie, in fact we might say it is a portrait of a collie, for the rest of the picture is of no consequence except that it gives a very pleasing background with good balance. In this picture the dog has been re-developed to a rich brown, the rest of the picture having just a slight tinge of warmth in the shadows, and Mr. Collie really looks as though he might step out of the picture at any moment.

WHEN MOTHER WAS WELCOMED HOME

Re-developing requires three operations, the bleaching of the print, the re-developing and the washing. Local re-development only requires that the bleaching be done locally as the whole print

may go into the re-developing solution and only the parts that have been bleached will be re-developed brown. Velox Re-developer contains all necessary chemicals. Prepare the two solutions, re-developer and bleacher, and with a small camel's hair brush dipped in the bleaching solution, go over the objects you wish to bleach out, being careful not to run over the edges with the solution. With several applications all the black will be bleached out, then the print is rinsed and placed in the re-developer. In a few seconds the parts locally treated have turned a rich brown and the print is washed and dried in the usual way.

If the contrast between the brown and black is too great, single objects may be entirely bleached out, after which the entire print may be dipped in the bleacher and given only a few seconds bleaching. In this way the black of the background has a slight warmth which makes the result more harmonious. The experiment is not only interesting, but the results make it worth trying.

Velox prints of any grade or surface, provided they have been evenly and thoroughly fixed, may be re-developed in this way, but the 'Royal,' because of its natural soft cream tint, is best.

GOOD FRIENDS

Made with a No. 3 Folding Pocket Kodak

IN THE PARK AT VERSAILLES

Made with a Premo; K2 Filter; two minutes exposure; stop 32

BITS OF

AS REFLECTED
IN KODAK
EXCURSIONS

NGLAND

PHOTOGRAPHING CUT FLOWERS

When we undertake to photograph flowers in our gardens or out in the fields we must accept conditions as we find them. If the wind is blowing we must await its pleasure, for flowers nod responsively to every breeze that blows.

But in photographing cut flowers or potted plants we can control the conditions, for we can take their pictures in any well-lighted room, where we can arrange the flowers and the lighting to suit ourselves.

The secret of success in indoor flower photography will be found in the right lighting and the use of a suitable background.

One of the simplest and most satisfactory ways to light flowers that are to be photographed in the house is, to place them a few feet from a window, with a reflector,

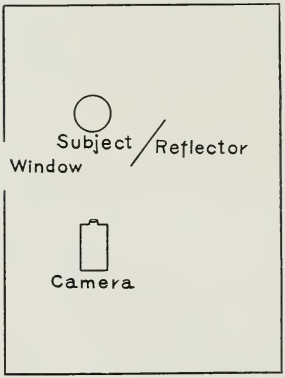

Diagram suggesting arrangement for photographing flowers indoors

which may consist of a sheet of white cloth or white paper, placed so that it will reflect light to the side of the flowers that is farthest from the window.

White flowers may be photographed directly opposite a window, if desired, but they can usually be pictured more satisfactorily if they are lighted in the way that all flowers that are not white should be, that is, they should be so placed that the light from the window will reach both the front and one side of them. This lighting can be obtained by any window that is to one side and a little in front of the flowers. (See diagram).

The light should come downward as well as from the side, at an angle of about 45 degrees, so that the strongest light on each flower will be near the top of it.

The background must photograph either lighter or darker than the flowers or they will be invisible in the picture. Should red flowers, which photograph black, be pictured against a black ground, or should white flowers be pictured against a white ground, the result will be a total failure. On the other hand, should red flowers be photographed against a white ground and white flowers against a black ground the result, in both cases, will be a picture showing the flowers clearly outlined against the background.

Flowers not only vary greatly in color but different flowers on the same plant may show different tones or shades of the same color, and, when in doubt about the tone (white, gray or black) in which

A CHRYSANTHEMUM CLUSTER

they will photograph, and also when a group of different colored flowers is to be photographed, it is wise to use a background that will photograph gray. In fact, such a background will usually prove satisfactory for flowers of all colors, and it need consist of nothing more than a wide sheet of ordinary tan-colored wrapping paper, that is free from wrinkles.

Whether to use a filter or not will depend on how the flowers will photograph, with and without a filter.

When no filter is used white and light blue flowers will photograph white. Dark blue flowers will, usually, photograph gray, light green and pale yellow ones will also photograph gray, dark green and deep yellow ones will photograph quite dark, while orange and red flowers will photograph black.

Blue will photograph darker and yellow lighter with a Kodak Color Filter than without it. A Wratten K2 filter will make blue photograph somewhat darker and yellow quite a bit lighter than the Kodak Color Filter does. Both filters will slightly lighten the rendering of orange, but neither will have any effect on the rendering of red, which will always photograph black, unless a special plate that is sensitive to red is used.

Those who have photographed red, or orange or yellow flowers and have found that some parts of the flowers were rendered white while other parts were rendered black in the pictures, may have wondered how this happened. This sometimes occurs with flowers that have glossy or wax-like petals. All glossy surfaces, no matter what color underlies the gloss, will reflect white light, and the way to avoid getting these black-and-white effects, when photographing glossy petaled flowers is, to light them so that the light on the shadow side will be nearly as strong as the light on the window side of them, then, be careful not to over-develop the negative, and in printing, make the print on Special Velox.

By using a Kodak Portrait Attachment the fixed focus box Brownies and Premos can be placed as close as $3\frac{1}{2}$ feet from the flowers, and the folding Kodaks, Premos and Brownies can be placed as close as 2 feet 8 inches from them. The closer the camera is to the subject the larger will be the image of the subject in the picture.

A filter can be used in front of a portrait attachment when desired. If both filter and portrait attachment are mounted in cells which slip over the hood or flange of the lens, the front of the filter cell should be placed in contact with the front of the portrait attachment cell, and the two bound together with adhesive paper or tape.

When this is done the two cells will look exactly alike and a pencil or penknife mark should be placed on the filter cell, to make sure that the filter will always be used in *front* of the portrait attachment. Unless the portrait attachment is placed next to the lens, with the filter in front of it, the picture will be blurred.

The exposure to give cannot be definitely stated, as this will depend on the light conditions and the stop used, but the writer has

THE CALLA LILY

always obtained fully timed negatives, when the flowers were not more than 3 feet from a window through which no sun was shining, between the hours of 9 and 4, by giving an exposure of from one to two seconds, with stop 16.

With a Kodak Color Filter the exposure must be about 10 times as long, and with a Wratten K2 Filter it must be about 20 times as long as would be needed without a filter.

These factors of 10 and 20 are calculated for rendering the same amount of shadow detail as will be secured with exposures that are respectively, 1/10 and 1/20 as long, without a filter.

PROBLEMS IN SAND

Made with a 3A Folding Kodak

ADJUSTING SMALL FOCUSING CAMERAS FOR USE AS FIXED FOCUS CAMERAS

THERE are two distinctly different types of hand cameras—the folding type, which can be compactly closed when not in use, and the box type which, whether it is in use or not, is always of the same length and breadth and thickness.

Most of the box cameras have but one shutter speed and a single lens, which is built into the camera, at a fixed distance from the focal plane where the film lies. The distance that the lens is placed from the focal plane is so calculated that it is always in focus for such work as the camera is designed to do.

The extreme simplicity of the fixed focus box appeals to many photographers who prefer, however, to use the folding focusing camera because it is adapted for a wider range of work than can be done with a fixed focus camera and it is also more compact than any box camera that makes the same size pictures.

What many photographers would like is a camera that is as simple to manipulate as the fixed focus box and still possesses all the advantages of the focusing camera.

The fact of the matter is that every 3¼ x 4¼ and smaller, Kodak, Premo and Brownie camera of the folding focusing type is, in reality, such a camera.

In order to explain this statement and make clear how these cameras can be used as fixed focus cameras, we will consider the principles on which the construction of the fixed focus box camera is based.

While the lens is always used at the same distance from the film, in a fixed focus camera, yet it must not be supposed that the lenses that are fitted to these cameras, have, what is sometimes quite erroneously called, a universal focus, which enables them to make equally sharp images of all objects at all distances from the camera, for such a lens cannot be constructed.

All lenses, no matter what their size or type or focal length may be, must be placed at a certain distance, known as the focal point, from the film in order to project sharp images of objects, to the film. This distance is determined by the focal length of the lens and the distance from the lens to the object it is focused on.

When a lens is focused on an object 100 feet away the focal point is nearer to the film than when it is focused on an object that is 10 feet away. To illustrate: Diagram 1 shows that when the lens is focused on the distant object H, so as to render a sharp image of the object on the film at X, it must occupy the position A, which is nearer to the film than the position B which the lens must occupy in order to render a sharp image at X, of the nearby object E.

With a long focus lens, as shown in Diagram 1, these focal points are far apart, while with a short focus lens, as shown in Diagram 2, they are close together. The distance between these focal points depends solely on the focal length of the lens. For a lens that has a

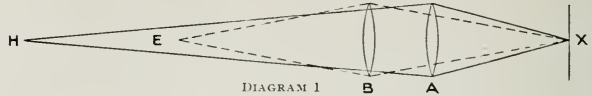

DIAGRAM 1

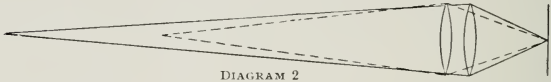

DIAGRAM 2

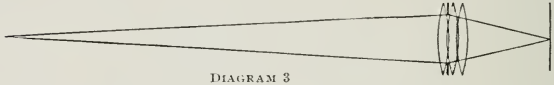

DIAGRAM 3

focal length of 3 inches this distance is but a small fraction of an inch, while for a lens that has a focal length of 12 inches this distance is more than an inch.

The depth of focus of a lens, that is the distance between the nearest and farthest objects that the lens can sharply focus depends, both on the distance between the focal points and on the size of the stop that is used in the lens. The closer the focal points are to each other the greater the depth of focus of the lens, and, the smaller the stop that is used the greater the depth of focus of the lens. Since the focal points of short focus lenses are closer to each other than the focal points of long focus lenses, and since the use of a small stop in a long focus lens cannot make its depth of focus equal that of a short focus lens that is used with a small stop it is evident that short focus lenses have the greatest depth of focus.

By slightly stopping down a short focus lens we can find a position that is intermediate between these focal points, as is shown in Diagram 3, at which the lens will give approximately sharp images of all objects that are from about 10 feet to an infinite distance from the camera.

The optical principles we have mentioned are applied in the construction of fixed focus cameras. The following table shows how to apply them to the focusing Kodaks, Premos and Brownies that make pictures $3\frac{1}{4}$ x $4\frac{1}{4}$ or smaller. Since focusing cameras that make pictures larger than $3\frac{1}{4}$ x $4\frac{1}{4}$ are fitted with lenses of greater focal length than are used on fixed-focus cameras it is not advisable to adapt the fixed-focus principle to cameras larger than those we have listed.

By keeping the camera adjusted as shown by the table it will always be ready for making snapshots. By changing the adjustments all the more comprehensive equipments of the focusing camera instantly become available.

FOCUSING KODAKS, PREMOS AND BROWNIES

THAT CAN BE USED AS FIXED FOCUS CAMERAS

Name of Camera	Set Focus	Set Shutter	Set Stop
No. 1 Autographic Kodak Jr., R. R. Lens	25 Ft.	Speed 25	8
No. 1 Autographic Kodak Jr., *f.* 7.7 Lens	25 Ft.	Speed 25	11
No. 1A Autographic Kodak Jr., R. R. Lens	25 Ft.	Speed 25	8
No. 1A Autographic Kodak Jr., *f.* 7.7 Lens	25 Ft.	Speed 25	11
No. 1A Autographic Kodak R. R. Lens	25 Ft.	Speed 25	8
No. 1A Autographic Kodak *f.* 7.7 Lens	25 Ft.	Speed 25	11
No. 1 Autographic Kodak Special	25 Ft.	Speed 25	11
No. 1A Autographic Kodak Special	25 Ft.	Speed 25	11
No. 3 Autographic Kodak R. R. Lens	25 Ft.	Speed 25	8
No. 3 Autographic Kodak *f.* 7.7 Lens	25 Ft.	Speed 25	11
No. 3 Autographic Kodak Special	25 Ft.	Speed 25	11
No. 2 Folding Autographic Brownie Meniscus Achromatic Lens	Fixed	Speed 25	No. 1
No. 2A Folding Autographic Brownie Meniscus Achromatic Lens	Fixed	Speed 25	No. 1
No. 2A Folding Autographic Brownie R. R. Lens	25 Ft.	Speed 25	8
Premoette Jr., No. 1 Meniscus Achromatic Lens	Back Slot	Speed 25	No. 1
Premoette Jr., No. 1 R. R. Lens	Back Slot	Speed 25	8
Premoette Jr., No. 1 *f.* 7.7 Lens	Back Slot	Speed 25	11
Premo No. 12 R. R. Lens	25 Ft.	Speed 25	8
Premo No. 12 *f.* 7.7 and other Anastigmat Lenses	25 Ft.	Speed 25	11
No. 2 Folding Cartridge Premo Meniscus Achromatic Lens	Fixed	Speed 25	No. 1
No. 2A Folding Cartridge Premo Meniscus Achromatic Lens	Fixed	Speed 25	No. 1
No. 2A Folding Cartridge Premo R. R. Lens	25 Ft.	Speed 25	8

AFTER THE STORM

Made with a 3A Kodak, by John Haberstroh

ORDER FILM BY NUMBER

THERE are many models of roll film cameras in use that make negatives of the same size but require film spools of different lengths. This is owing to differences in the styles of the cameras.

Should you order a certain size of film from your dealer, without mentioning the style of camera you are using, he might not know what you need, but if you order by number he will know exactly what to give you. To illustrate: The No. 3 Folding Pocket Kodak, the No. 3 Cartridge Kodak and the No. 3 Brownie all make 3¼ x 4¼ negatives, but they are different styles of cameras and require film spools of different lengths. The film made for one of these cameras will fit neither of the others.

Eastman N. C. Film and Eastman Autographic Film are packed in cartons. A number is placed on the ends of each carton. This number indicates the size of negative the film will make and the style of spool on which the film is wound.

The 3¼ x 4¼ size of Eastman roll film is listed under four numbers, and is made for use in eight styles of Eastman cameras. Three styles of these cameras use film No. 118, three styles use film No. 124, one style uses film No. 119 and only one style requires film No. A118.

The 3A size of film is listed under three numbers, the 4 x 5 size under four numbers and some other sizes are also listed under two or more numbers, for cameras of various styles.

The letter A preceding the number on a film carton indicates that the film is autographic. If you are using an Autographic Kodak, a Kodak fitted with an Autographic Back, or an Autographic Brownie, make sure you order Autographic Film. Autographic records cannot be made on old style film.

Every year has witnessed improvements in Eastman Cameras. Some of these improvements have necessitated changes in the film spools. Since all models of Eastman cameras, from the oldest to the most recent, are in constant use, films must be supplied for all these models.

The number of the film used in any size or style of Eastman roll film camera is printed in large type in the manual that accompanies the camera.

Always order film by number that you may be sure of obtaining the film you need.

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Should you move from one place to another be sure to inform us promptly, giving both your old and new addresses.

SERVICE DEPARTMENT TALKS

HOLD THE CAMERA STEADY

If pictures that were made with a fixed focus box Brownie or Premo are so blurred that every line in them is "fuzzy" instead of sharp it is due to the fact that the camera was not held steady while the exposure was being made.

If pictures that were made with a focusing Kodak, Premo, Brownie or Graphic camera are wholly blurred it is either because the camera was not held steady while the pictures were being made, or because the focusing indicator was moved to some point behind the 100 ft. mark on the focusing scale or, in other words, because the camera front, to which the lens is attached, was not drawn out far enough for focusing the lens on any distance whatsoever.

The most frequent cause of blurred pictures is movement of camera, and, while there is no one way of holding it that is best for all people, there are two ways, by one of which, it can be held steady by most people. These are: holding the camera in both hands, with the camera resting lightly against the body, or holding it in both hands, slightly in front of the body, with the elbows resting against the body.

Those who do not adopt either of these ways should adopt the way that they find most convenient and most effective for holding the camera steady.

Never hold a camera with one hand only while operating the shutter with the other hand, and never make a jerky movement when pressing the shutter release. If you do either of these things the camera will be moved at the instant of exposure and the picture will be blurred.

Do not hold the camera in the hands while making any exposure that is longer than 1/25 of a second. For longer exposures always use a tripod, or some other firm support, or the picture will be blurred.

Should you encounter any problems in your photographic work that you cannot readily solve submit them to us. We will take pleasure in assisting you. There will be no charge.

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A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

SEPTEMBER 1920

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.

Kodak Self Timer

Price, $1.50

COMPOSE the view and establish the focus—then the Kodak Self Timer operates the cable release and makes the picture. The time elapsing between the instant the Timer is set and the "click" is under your control—plenty of time to rejoin the group or to pose for your own portrait.

Eastman Thermometer

Price, $1.00

A RELIABLE thermometer for any photographic purpose, but particularly adapted through its curved back and hook top for use with the Kodak Film Tank.

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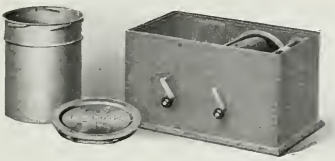
TORONTO, CANADA

All by Daylight



KODAK FILM TANK

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IN OLD FRANCE

Made with a Premo Camera; ½ sec. exposure; stop 16; K1 Filter

KODAKERY
A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 60 CENTS; SINGLE COPIES, 5 CENTS

VOL. VII SEPTEMBER, 1920 NO. 11

FIG. 1—THE CROSS-ROAD
Made with a Premo at 9.30 A.M., Sept. 10; 10 sec. exposure; stop 64

THE DENSELY SHADED PLACES

WE often wish to make pictures of our favorite summer haunts, some of which are sure to be in densely shaded places where the light is so weak that satisfactory pictures can only be secured by making time exposures.

While we can make snapshots, on cloudy-bright days, of light-toned objects that are under the open sky and get plenty of detail in the pictures, yet we cannot make snapshots that will show detail in dark-toned objects that are in deep shade, even on the brightest of sunny days.

The reason for this is that objects that are out in the open are illuminated by the light that comes,

at all angles, directly from the sky, while objects that are in the dense shade of trees receive so little light directly from the sky that some parts of them are illuminated chiefly by light that is reflected from objects that surround them.

For illustrating the kinds of subjects we are discussing, two typical scenes, such as are often found in the country, were selected. Fig. 1 shows a narrow cross-road that is cut through a hill. The section of this road that the picture represents is bordered, on both sides, by trees which overhang the roadway and prevent much of the light that comes directly from the sky from reaching it.

The lighting of the subject, at the time the picture was made, 9.30 A. M., in September, was extremely contrasty—the spots that the sunshine reached appearing very bright in comparison with their more dimly-lighted surroundings. Any attempt to photograph a scene similar to this with a snapshot exposure will result in a picture that is wholly void of shadow detail.

The exposure that was given was 10 seconds with stop 64. This small stop was used because the banks, on both sides of the road, were overgrown with vines and bushes, some of which were only a few feet from the lens, and the only way that sharp images of these, and also of the more distant objects, could be secured was by stopping down the lens.

Fig. 2 shows a small brook which has eroded a narrow channel in the bed of what was formerly a stream at least twenty feet wide. Very tall trees stand along the low banks of the older channel and their wide-spreading tops form an arch above the brook.

The negative from which Fig. 2 was made received only half as much exposure as the one from which Fig. 1 was printed. Fig. 2 was shaded by a thin line of trees on either side, and, though very little sky could be seen on looking upward, considerable sky could be seen on looking across the landscape on both sides of the brook. Fig. 1 was so densely shaded by a forest on the right and an orchard of old apple trees on the left that but little sky could be seen when looking in any direction.

In considering exposure we must remember that we photograph objects by the light that they reflect, and, as the brightness of the light that is reflected from densely shaded scenes varies greatly, it is wholly impossible to state, definitely, how long an exposure will be needed for recording detail in all but the darkest shadows.

A good method for judging what exposure to give is, to stand in the midst of the scene and observe whether much or little sky is visible from that position. The writer has found that if comparatively little sky can be seen in any direction, but detail can be seen in the dark tree trunks that are from 10 to 20 feet distant, an exposure of 3 seconds with stop 16 is usually sufficient. If stop 64 is used the exposure must be four times as long as with stop 16. If no detail can be plainly seen in the dark tree trunks the exposure should be not less than 10 seconds with stop 16, or 40 seconds with stop 64.

If little sky can be seen overhead

FIG. 2 THE BROOK

Enlarged from a 3A Kodak negative which received 5 seconds exposure with stop 64; 4 P.M. August 5

but considerable is visible across the landscape only one-half or one-quarter as long an exposure need be given as when but little sky can be seen in any direction.

Should the subject be one that receives considerable light from above, and also from the side, it cannot be classed as a densely shaded scene. It should be photographed with the exposure recommended for a shaded nearby scene, that is, $\frac{1}{25}$ second with stop 4. Dense shade does not exist where plenty of top and side light penetrate.

The very places where we love to picnic are the densely shaded forests and ravines. Pictures of such places are well worth while and if care is taken to give sufficient exposure they are easily made.

THAT PAL O' MINE

BY ARTHUR O. FRIEL

"Move that cracker away from your face. Sink the cheese about a foot. No, over toward the middle of your body. Now smile, dog-gone yuh, smile!"

Snap!

Sunny Jim rolled the film, closed the Kodak, and continued:

"It's a terrible waste of film, but we need a few figures just to round out our record of this camp. We'll call this one 'A Study in Cheese.'"

"How come?" I demanded.

"Simple enough. Except for one cracker and the end of the tent, there's nothing but cheese in the picture."

I restrained an impulse to hurl the cheese at him. Our camp was on a mountain-top, more than twelve miles from the nearest village; and when replenishing supplies means tramping twenty-five miles over hill roads and mountain trails, toting those supplies on your back, you don't waste grub by heaving it around recklessly.

Without reply, I resumed my stand-up lunch. While the slab of cheese, sundry crackers, and a drink of spring-water were going down I meditated revenge. And when my rank old pipe was glowing I suggested:

"Come with me, little one, and I'll take a real picture."

We ambled, rambled, and scrambled about half a mile over the hummocky stone summit and down into a grove of birches.

"Now festoon yourself over that bough and try to look intelligent," I commanded.

He hung himself up comfortably, puffed away at his calabash, and amused himself with persiflage concerning my deliberate movements. While he was chuckling over one of his verbal shots I turned the Kodak loose on him, and another pictorial record was added to our collection.

"NOW SMILE!"
Made with a 3.1 Kodak

"Glad to see you have an eye for beauty," he laughed, hopping off the limb. "What will you call it—'The Nymph of the Birches?'"

"Nope. Just 'The Birches.' If anybody asks what that thing in the middle of the picture is, I'll say: 'Oh, that's just an insect that crawled in front of the lens.'"

Then I had to run. I escaped because he caught his foot and skidded against a tree. By the time he picked up speed again I was out of reach of anything but oral assaults.

A few days later we broke camp. But before we folded our tent we took more pictures of each other, some of them posed and some emphatically not. One of the latter was a stealthy shot of which I remained totally unconscious until the films came out of the Eastman tank at home. Then I discovered a record of a shirtless individual with a face resembling a charlotte russe. The printing-frame and a sheet of Velox brought out a photograph of myself in the act of shaving off a week's beard.

Others were taken more openly. A few showed us both in the same picture. Making these was not so easy as it would be nowadays, for then that marvelous little instrument—the Kodak Self Timer—was not available to the Kodaker. We had to use a twenty-foot rubber tube, a bulb nearly filling the fist, and a squeeze that almost dislocated an arm. But we got the exposures, and felt quite chesty over it.

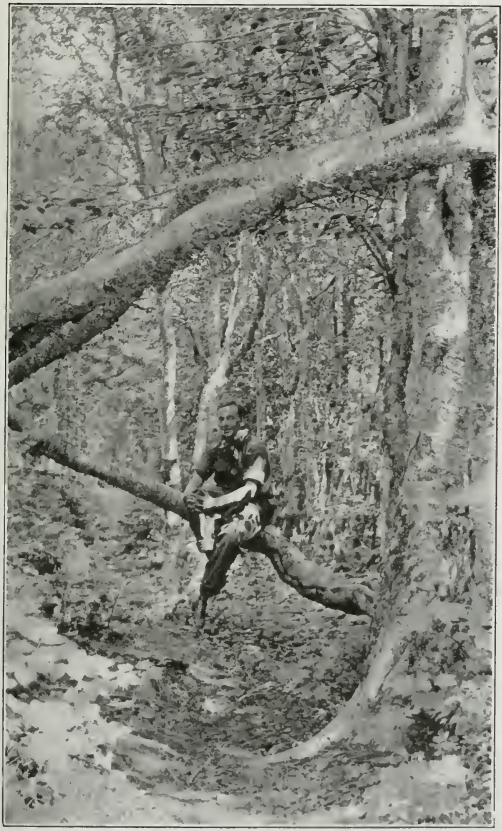
As Sunny Jim said, these personal pictures were taken just to round out the record of the camp. We devoted our serious efforts to photographs of our immediate and distant environment—the old mountain itself and the wondrous panorama of hills and lakes and forests down below. We ached to know what luck we had had with our ventures at depicting glorious sunsets, and we argued as to whether the far-off White Mountains would show on the film. But we thought little of those rough-and-ready portraits.

We were old chums, weren't we? Down in town we could snapshot each other whenever we felt like it, couldn't we? Of course. And besides, we were coming back here for a hunting trip later on.

But—

We never went back. We never photographed each other again. Soon after breaking camp we were seized by different currents in the big River of Life and swept far apart. The snows of nine winters have buried our old camp-site since then, and in all that time we have met only twice—brief meetings amid the rush and roar of a big city, far from the wild freedom of our mountain.

And with the passing of the years those lightly taken personal pictures have become more valuable to us than all the scenic studies on which we worked so carefully. The mountain and the wide vistas still are there, and either of us can go again to the bald summit at his leisure and photograph them anew. But whether we shall ever again sleep side by side and tramp shoulder to shoulder up there in the North Country we do not know. So it is that those few portraits hold a value not to be measured in money.



"THE NYMPH OF THE BIRCHES"
Made with a 3A Kodak

THE RIGHT WAY TO USE THE FINDER

When making photographs with a hand camera we arrange the composition of the picture in a finder which shows us a miniature image of our subject.

The opening in the mask that is fitted over the glass on the top of the finder that is attached to a modern Kodak, Premo or Brownie is either cross shaped or oblong.

When we look into a finder that has a cross-shaped mask we can see the composition for both a horizontal and a vertical picture at the same time, as is shown in Fig. 1. It is, therefore, important that we arrange the composition of our picture in the horizontal part of the mask when the camera is held horizontally (Fig. 5), and in the vertical part of the mask when the camera is held vertically (Fig. 7).

Unless we do this our picture will show only a part of what we wish

Fig. 1—Enlarged View of Finder Image

FIG. 2

it to contain. To illustrate: The picture in the finder (Fig. 1) tells us that this subject should be photographed with the camera held horizontally, because the image of the boat extends beyond the lines of the vertical part of the finder, but is wholly included within the horizontal lines. If we photograph this subject with the camera held horizontally we will obtain the picture shown in Fig. 2; but if we ignore what the finder tells us, and photograph this subject with the camera held vertically, the result will be the picture shown in Fig. 3.

When we look into a finder that has an oblong mask (such as is attached to the Special Kodaks and the Special Premos) we cannot see both the horizontal and vertical compositions at the same time. We can only see the composition for horizontal pictures when the finder top (which turns) is in the position shown in Fig. 4, and the compo-

FIG. 3

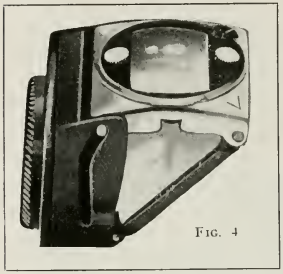


Fig. 4

sition for vertical pictures when the finder top is in the position shown in Fig. 6.

When we make a picture with the finder top in the horizontal position (Fig. 4) we must hold the camera horizontally (Fig. 5), and if the finder top is in the vertical position (Fig. 6) the camera must be held vertically (Fig. 7). Unless this is done the picture will not record all that was seen in the finder.

There are three guides on the top of this finder, either of which will instantly tell whether it is set for a vertical or a horizontal picture. These guides are: The way the long side of the glass extends, the position of the two turn buttons and, the position of the indicator which, in Fig. 4 points to H (horizontal), and in Fig. 6 points to V (vertical).

All who possess hand cameras so quickly form the habit of using the finder in the right way that they are oftentimes unconscious of doing anything more than look into it while arranging the composition of the picture, but beginners, to whom the use of a camera has not yet become second nature, should always make sure that they use the finder in the way it is intended to be used.

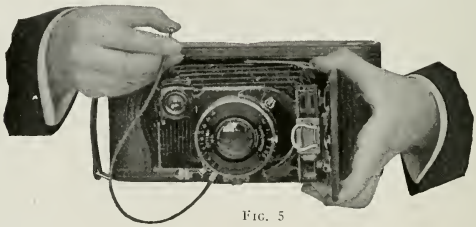


Fig. 5

What we have stated applies, of course, only to folding hand cameras that have but one finder, be-

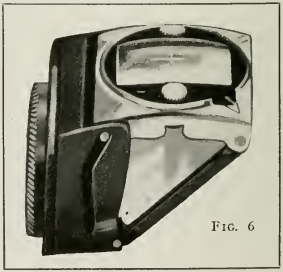


Fig. 6

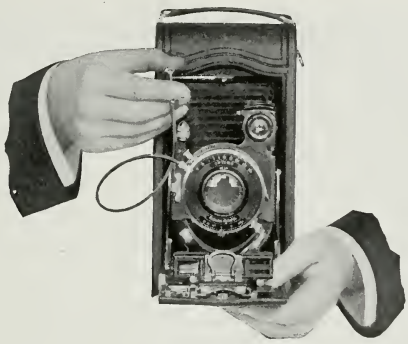


FIG. 7

cause the fixed focus box Brownies and Premos that make oblong pictures are fitted with two finders, which are built into the cameras in such positions that the horizontal finder must be used for horizontal, and the vertical finder for vertical pictures.

AN ENGLISH VILLAGE
Made with a 2C Brownie

Made with a 2C Kodak Jr. by C. A. Kittredge

NATURE'S PYROTECHNICS

LEAPING from cloud to cloud, or, as it more often does, from cloud to earth, the lightning flash presents a spectacle that nothing else can equal.

Were it not for the camera, which gives us permanent and accurate records of these swiftly-moving streams of light, our conceptions of the various forms of lightning would necessarily be confined to the impressions that our eyes can gather in brief fractions of seconds, and these, as the camera has shown us, are always incomplete.

The camera has revealed many sinuous lines of light that branch off from the main stream, some of which are so much narrower and so much less brilliant than the main line of the flash that we cannot see them during the brief interval that a dazzling flash remains visible.

The camera has also recorded double and triple streams of lightning which moves in parallel lines, very close to each other. When these are seen near at hand they are often of such blinding brilliancy that to the human eye they are apt to appear as a single stream of light which flashes out of the darkness and instantly disappears.

The only form of lightning of which satisfactory pictures cannot be made is the sheet-lightning, which almost uniformly illuminates a broad expanse of sky. What we need for spectacular pictures are the sharply defined lines of light,

Made with a 2C Kodak Jr. by C. A. Kittredge

and these are furnished by chain-lightning, which sometimes shows a zigzag, though more often a streamlike or forked flash, and by ball-lightning—a rare form—which appears as a fiery globe descending to the earth.

Though lightning flashes can rarely be successfully photographed during the daylight hours, it is a very easy matter to secure good photographic records of them on a dark night, with any kind of camera. All that needs to be done is to place the camera on a tripod, or on some other rigid support, point the lens toward that part of the sky where the flashes are occurring and open the shutter, with the largest stop in the lens. As soon as a flash has appeared the shutter should be closed and another film placed in position.

Made with a 2C Kodak Jr by C. A. Kittredge

SUMMER—HERE

KODAK IN
THE OUT-

"OVER THERE"

SIONS OF
" SEASON

DEVELOPING FILM PACK FILMS IN ORDINARY ROOMS

The Premo Film Pack Tank is made for the photographer who wishes to develop his own film pack films.

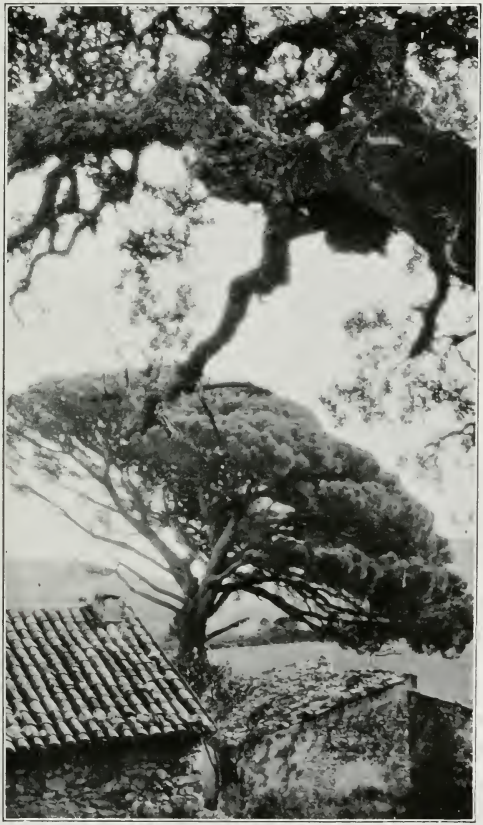
Tank development is more convenient and more economical than tray development, and it is also the surest method of obtaining correctly-developed negatives, because in tank development nothing is left to the judgment of the worker, while in tray development the worker must rely solely on his own judgment for determining when to stop development.

Film pack films must be removed from the pack and placed in the developing tank, and must then be taken out of the tank and placed in the fixing bath, in a darkroom. By a darkroom we mean a room that it totally dark when all the lights are extinguished. As the films are not readily affected by a deep red light it is customary to illuminate the darkroom with a ruby darkroom lamp.

Amateurs who have no room available that can conveniently be made totally dark in the daytime can easily fit up an extemporized darkroom in the evening, and, when this is done the room can speedily be restored to its former condition after the films have been developed and fixed.

When traveling, the writer has frequently developed film pack

A FRIENDLY STREAM
Made with a No. 1 Kodak Jr.



TREE POETRY

Made with a 3A Kodak; ½ sec. exposure; stop 32

CHURCH OF STE. MAXIME, FRENCH RIVIERA
Made with a 3A Kodak; ½ sec. exposure; stop 32

films, without fogging them, in the bedrooms and bathrooms of hotels. These rooms were made totally dark by placing a rug or a coat on the floor for shutting out the light that came in under the door, and hanging bed blankets over the windows for shutting out such light as came in around the window shades after they had been drawn down.

This method was recently applied to a kitchen that had one glass outer door and five other doors leading to inner rooms. It also had two windows. Though the moonlight was shining on one of the windows the room was made totally dark in a few minutes by the method mentioned. A Brownie Safelight Lamp was attached to a light fixture above the kitchen sink, and the films were handled by the light of this lamp. After the films were developed and fixed every negative was found to be wholly free from fog, which proved that this extemporized darkroom was a perfectly safe place for developing film pack films.

The method suggested for converting an ordinary living room into a darkroom can be employed in any home, but there are two simple precautions which must be carefully observed. If either of them is ignored an entire batch of films will be ruined. These precautions are: To make sure that the room is really light-tight, and to permit no one to enter the room while films are being removed from the pack for placing in the tank, or while they are being transferred from the tank to the fixing bath.

The way to determine whether the room is really light-tight is to remain in it for five minutes after all lights have been extinguished. If at the end of five minutes no

CHUMS
Made with a No. 3 Folding Kodak

light can be seen entering the room it is wholly light-tight, but if light can be seen, the opening through which it comes must be closed.

In developing film pack films in a Premo tank be sure to use the Premo Tank Powders that are prepared for the size of tank you are using, and develop the films for 20 minutes, if the temperature of the developer is 65 degrees Fahrenheit. If the temperature is not 65 degrees then develop for one minute longer than 20 minutes for every degree that it is below 65, and one minute less than twenty minutes for every degree that it is higher than 65 degrees. Do not develop films or plates in any developer that is warmer than 70 degrees F., or the emulsion will swell and may leave its support. (Those who wish to develop films in the Tropics are invited to write to us for special instructions).

After the films have been developed the developer should be poured out and the tank filled with clear water. The films should be left in this water for about one minute, then washed in two more changes of water, after which they are ready for placing in the fixing bath.

It is important to leave negatives in the fixing bath for at least five minutes after all traces of the creamy color have vanished. If this is not done stains will appear, in the course of time, which may ruin them.

A PRIVATE CAR
Made with a 2C Kodak Jr.

A GLIMPSE OF CHARTRES CATHEDRAL
Made with a Premo Camera; 1/5 sec. exposure; stop f6

After negatives are taken from the fixing bath they must be washed in 10 or 12 changes of water in a tray, leaving them in each water for about five minutes, or from 45 to 60 minutes in running water. Negatives must not be in contact with each other while they are washing, as the water can only remove all the chemicals that are in the film by coming into constant contact with both sides of the film.

After the negatives have been washed they must be dried, in a place where the air is moving. They may be hung on a line with a bent pin run through a corner of each film.

By following the instructions we have given, all amateurs, even those who have had no experience in developing negatives, can obtain correctly developed film pack film negatives with ease and certainty.

AT THE EDGE OF THE SEA

Made with a Premo Camera; 1/50 sec. exposure; stop 8

AUTOGRAPHIC RECORDS FROM AEROPLANES

When the autographic feature was added to the Kodak none but a visionary could foresee how valuable it might prove to the aviator who, flying high in the air, photographs objects on the land and the water over which he passes.

Our conception of what things look like necessarily depends on the viewpoint from which we observe them. As the earth's surface looks very different when viewed from the sky than it does from a viewpoint on the earth, the aviator who makes pictures from somewhere in the sky, wants to know, beyond any possibility of doubt, what particular scene each picture represents.

The fact that the Autographic Kodak, loaded with Autographic Film, makes it possible to secure negatives which will disclose this information is one of the reasons why Autographic Kodaks were used by all the members of Sir Ross Smith's party during their air flight from England to Australia, a few months ago.

The service that the Autographic Kodak rendered these air men is referred to in the following letter from Sir Keith Smith, who made many of the pictures that were obtained during the flight:

"Menzies Hotel, Melbourne,
5th March, 1920.

"Messrs. Kodak (Aust.) Ltd.,
Sidney, N. S. W.

Dear Sirs:

"Before setting out on the flight from London to Australia, I was perplexed as to the most suitable photographic apparatus I should select to record the events of the journey.

"It was imperative to reduce weight to a minimum, and as space was very limited, it was essential the instruments must be as compact as possible. On going into the matter with my brother, we decided in favor of Kodaks. Our choice was well placed, and the Kodaks, four of which were carried, fulfilled all our requirements, furthermore, the Autographic attachment I found a boon.

"In order to identify a large number of exposures, I marked numbers on the Autographic attachment, which corresponded with similar numbers marked on the charts.

"The facility afforded by the developing tank enabled many films to be developed in tropical climes that otherwise would have deteriorated.

"Altogether the cameras gave us entire satisfaction, and should we ever again embark on another flight, I will re-equip with similar Kodaks to those used by us on our London-Australia flight.

"Yours faithfully,
"Keith Smith."

THE OLD MILL
Made with a 2C Brownie

SERVICE DEPARTMENT TALKS

DEVELOPING IN HOT WEATHER

Kodak roll films can be developed in a Kodak Film Tank and Premo Film Pack Films can be developed in a Premo Tank at any temperature between 45 and 70 degrees Fahrenheit, but developing them in a solution that is warmer than 70 degrees F. is not recommended, because the gelatine in which the silver salts are embedded softens during development, and, if the developer is too warm the gelatine will loosen from its support and the negatives will be ruined.

Water that is not warmer than 70 degrees F. can be had almost everywhere outside of the hot belts, even when no ice is obtainable. Wells and underground cisterns keep water cool. The basements and cellars of most residences are cool enough for keeping a jug or bottle of water below 70 degrees F., even on the hottest of summer days.

Cool water can usually be drawn from a lake or a deep pond in hot weather, by lowering a jug into deep water. Fasten a stone to the jug, tie a rope to the jug handle and attach a stout cord, that is as long as the rope, to the cork. After the jug has been lowered into deep water pull out the cork, and the water that lies at the level of the jug will rush into it.

Always use a fresh acid fixing bath in hot weather, and leave the negatives in this bath for about an hour. If this is done, the acid will harden the gelatine sufficiently so that there will be no danger of the gelatine leaving its support when the negatives are finally washed.

Keep the temperature of the fixing bath down to 50 degrees F., if possible. If this cannot be done, then do not dissolve the chemicals of which the fixing bath is composed until just a few moments before the films are to be placed in the bath.

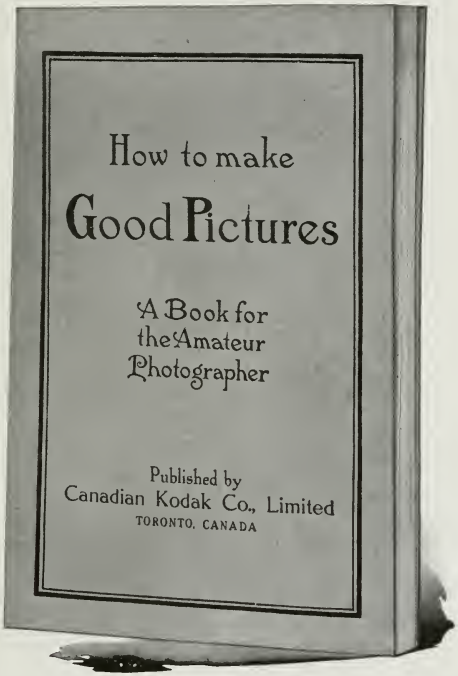
Hypo lowers the temperature of the water in which it is dissolving, and a freshly prepared fixing bath is, therefore, much cooler than one that has been exposed to the temperature of the room for some time.

Do not guess at the temperature of either the developer or the fixing bath. *Always test the temperature with a thermometer.*

If you wish to develop films or plates in places where no water as cool as 70 degrees F. can be obtained, write to us for special instructions, for this is emergency work.

Address all communications

SERVICE DEPARTMENT, CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.



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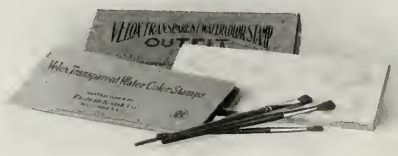

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The Velox Transparent Water Color Stamp Outfit offers the greatest convenience in coloring, as it includes the book of stamps, three brushes and a white enameled mixing palette, put up in a neat cardboard case.

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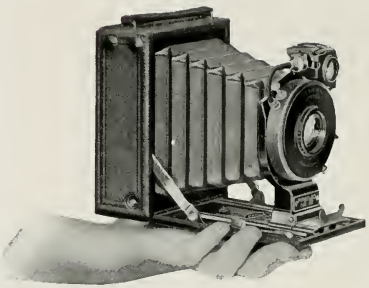

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—a small camera

—of wide range

—and high quality

In a camera whose outside measurements are only 1⅝ x 3¼ x 4⅝ inches, you do not expect to find equipment permitting:

—pictures 2¼ x 3¼ inches.
—shutter speed of 1/300 of a second.
—the choice of cartridge film, Premo Film Pack or orthochromatic and panchromatic plates.
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But you do find all these in the *Premo Twelve*. With all its equipment, it is small; but with all its smallness, there is no sacrifice of efficiency.

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TORONTO, CANADA

KODAKERY

A
MAGAZINE for AMATEUR
PHOTOGRAPHERS

OCTOBER 1920

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.

You don't carry it; you wear it—like a watch.

The Vest Pocket Kodak

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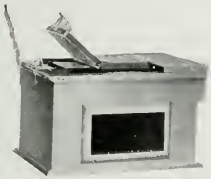

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BOUGHS AND A SMILE

Enlarged from negative made with a No. 3 Kodak

KODAKERY
A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 60 CENTS; SINGLE COPIES, 5 CENTS

VOL. VII OCTOBER, 1920 NO. 12

ON THE COAST OF THE FRENCH RIVIERA
Made with a 3A Special Kodak. Exposure 1/25 sec., f.22

THE SURF

THE spectacle of surf dashing against the rocks is always an interesting subject for the camera.

The pictures can almost always be secured from a position where no spray falls, but when it is desired to make a picture from a viewpoint where the air is filled with mist the method recommended is to watch the waves for a few minutes, from that viewpoint, while keeping the lens covered so that the spray cannot reach it.

From the appearance of the approaching rollers one will soon be able to determine which particular one will be most apt to produce the finest spectacle. As this one comes rushing landward the lens should be uncovered and the image located in the finder, just a

BETWEEN MONTE CARLO AND MENTONE
Made with a 3A Special Kodak. Exposure, 1/25 sec.; f.22

few moments before the wave breaks on the rocks.

After the exposure has been made the spray should be carefully wiped from the lens with a clean, soft linen handkerchief, and the lens covered again. A spray covered lens cannot make a brilliant picture.

In photographing surf we should always consider the background against which it is to be pictured. Surf photographs white and it can only be clearly outlined against a ground that photographs darker than white.

A sky that has white clouds along the horizon will not make a suitable background, because white clouds will photograph white, but a blue sky, and also gray and black and colored clouds, will be suitable as they will photograph darker than the surf.

The surface of the sea will photograph darker than the surf, unless it reflects sunlight directly to the lens.

All landscape objects that are not white will photograph in a dark tone.

The reason why a blue sky, which usually photographs white in ordinary landscape work, will not be rendered white in photographing surf is because the exposure needed for photographing surf is shorter than that needed for photographing ordinary landscapes.

All background problems can easily be solved by examining the subject from the position the lens will occupy when it makes the picture. From this position the photographer can see all that the lens will see and can instantly determine whether the viewpoint is a suitable one.

Surf can be photographed on cloudy-bright days as well as on days of sunshine. The exposure

THE PRECIPICE

Made with a 3A Kodak

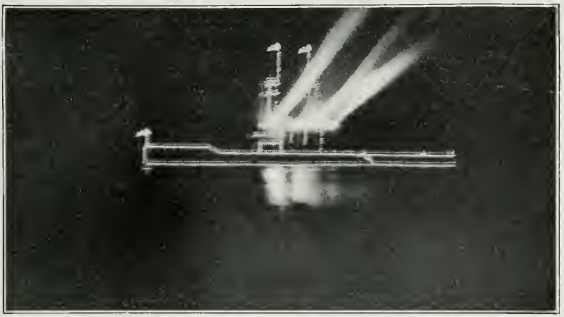
recommended for focusing cameras is 1/50 of a second. On sunny days use stop 16 and on days that are cloudy-bright use the next larger stop.

With fixed focus box cameras make a snapshot. Use the second stop on sunny days and the largest stop on days that are cloudy-bright.

The 1/50 second exposure with stop 16 that we recommend will produce the same light action on the film as the 1/25 second exposure with stop *f*.22 that the negatives which made our illustrations received. The advantage of using the 1/50 shutter speed is that it enables us to obtain sharper images of the rushing surf than it is possible to obtain with a 1/25 shutter speed.

A WINDLESS NOON

Enlarged from a Kodak Negative



A WARSHIP AT ANCHOR

Made with a 1A Autographic Kodak Jr. by Wm. A. Breen. Exposure 5 min.; stop 2; shutter opened and closed 8 or 10 times to avoid passing boats

SILHOUETTES OF DECORATIVE ILLUMINATIONS

SILHOUETTES are usually the most striking pictorial records that can be made of decorative illuminations.

As these silhouettes consist of a multitude of tiny white disks on a black background, the disks representing incandescent electric lights, they must, of course, be made at night, and the exposure must be so timed that the film will record the lights without recording detail in the building or other structure to which they are attached.

This can easily be done, because the light that travels directly from the lamps to the lens is very much more brilliant than the light that is reflected from the support that holds the lamps.

Splendid results have been obtained by giving a 3 minute exposure with stop 16 on rectilinear and anastigmat lenses, and also by giving a 3 minute exposure with the second stop on single lenses. Single lenses are always placed behind the shutter, so that no lens can be seen when the shutter is closed.

The illustration shown above suggests what can be secured, even when the conditions are unfavorable, for Mr. Breen informs us that he opened and closed the shutter 8 or 10 times during the 5 minutes it took to secure the photograph.

The picture shows the outlines, in silhouette, of a Battle Cruiser at anchor. The reason why the shutter was opened and closed so often is because other boats, that showed lights, were passing at the time the picture was being made. Just before a boat came within the field of view of the lens the shutter was closed, and then open-

ed again as soon as it had passed.

By this method photographs can easily be secured of decorative illuminations on buildings before which trolley cars or automobiles are passing at night.

DEVELOPING ROLL FILMS OUTDOORS

TAKE no chances on your vacation pictures; develop them on the spot. You will be sure to make some under conditions with which you are not familiar, and these may be the very ones you are most anxious to secure. The only way to find out whether your pictures will be good or not is by examining the negatives. If some of them are not good the only time you can make them over again is before you start for home.

Another reason for promptly developing films that were exposed in sultry weather is that hot, moist air has an injurious effect on all sensitized photographic products. After films have been taken out of the carton, in which they were protected against the atmosphere by special wrappings, and have passed through the camera, they have been in contact with the air and, if the air was hot and moist, they should be developed promptly.

Even though you may be camping in the forest, or spending your nights in a tent while traveling by automobile, you can develop roll films, in a Kodak Film Tank anywhere, outdoors as well as indoors, the same day they were exposed.

This does not mean that you must carry along a lot of apparatus. All you need, in addition to the camera, is a Kodak Film Tank, a fixing tray and a thermometer. The Kodak Film Tank is a complete developing outfit, which includes a changing box, a metal solution cup or tank, a reel and apron and a metal hook for lowering the reel into the tank.

Turning a small crank on the changing box winds the film into the apron while the apron is being wound on the reel. This can be done, and the reel can be taken out of the changing box and placed in the developing tank, in daylight.

While it is just as easy to develop films outdoors as indoors, the daylight is always stronger outdoors than indoors and care must be taken not to transfer the negatives from the tank to the fixing bath until after the developer has been thoroughly washed out of them. If this precaution is neglected the films will be fogged.

The films should be washed not less than three times between developing and fixing, for about three minutes each time. The safest way to do this, out in the open, is to pour off the developer without removing the reel from the tank, then fill the tank with clear water.

THE FIRST GLIMPSE OF THE NEGATIVES

As soon as it is filled raise and lower the reel with the metal hook, bringing it to the top of the water, not above it, three or four times, so that any air that may be in the tank will be expelled.

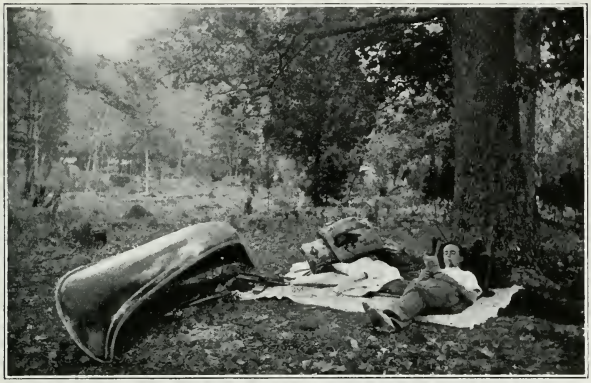
One of the best times for developing roll films outdoors is during twilight. If they are to be developed while the sun is shining be sure to do the work in a well-shaded place. After the roll of films has been developed and washed it should be taken out of the apron and quickly immersed in the fixing bath.

After the films are thoroughly fixed—which will be not sooner than five minutes after all the creamy color has disappeared—wash to remove every trace of hypo and other foreign substance. Five or six changes of cold water will be sufficient for this if the films are left to soak for five minutes in each change. After washing hang them up to dry, out in the open, where the air is free from dust.

By observing the simple precautions we have mentioned, you can develop films outdoors without fogging them, and by developing them on the spot you will know, before you start for home, just what you have secured as pictorial records of your vacation.

SEATS IN A PRIVATE CAR

Made with a No. 1 Kodak Jr.



WHO TOOK THE PICTURE?

PICTORIAL RECORDS

Our ancestors described events, we picture them. As an aid to memory, they wrote a lengthy record in a diary; we write a brief one—a single line only, on the end of an autographic film. The autographic record tells the date, and the negative shows a picture of the event.

The only way we can get a story out of words is by translating them into mental pictures. Autographic film stories are pictures, and they are more accurate and more comprehensive than any mental pictures can be.

Imagine trying to write a comprehensive description of even so simple an event as is shown by the picture above! No matter how long you labored you could not tell in words what this picture tells at a glance.

And yet, this picture, made years ago, does not tell the story as completely as could a picture of to-day. The canoe furnishings call for a feminine presence, but the picture does not show the girl—doubtless because she was operating the camera and had no device which would permit her to take the picture and also be included in it.

This is a misfortune which often happened formerly, but need never happen now—when one uses a camera that can be operated by a Kodak Self Timer attached to the end of a cable release.

Our illustration is typical of the picture records we all want as souvenirs of our outings—pictures that show the friends and the scenes that helped to make the outings enjoyable.

A NORMANDY SIDE STREET

Made with a 3A Folding Kodak

Pictures of similar type can be made with ordinary snapshot exposures when the subjects are in sunshine, but time exposures must be given when the subjects are in the shade.

There are two kinds of places in which such pictures are ordinarily made; in the open shade, that is, in locations which receive light from above and also from the side, and in places that receive practically no light from above, being lighted almost solely from the side.

If the subject is in open shade, with nothing but the sky overhead, an exposure of 1/25 second with stop 4 on rectilinear, or stop *f*.8 on anastigmat lenses, will be ample; but if the subject is in the shade under a porch roof, or in the shade under a large tree, the exposure must be from 4 to 8 times as long.

With fixed focus box cameras that have no bellows, and have no lens in front of the shutter, use the smallest stop. If the subject is in open shade make a 1 second exposure and if the subject is in the shade under a roof, or in the shade under a tall tree, make an exposure of from 4 to 8 seconds.

THE SHEPHERD

Made with a No. 1A Kodak Jr.

IN THE ALPS
Made with a 3A Kodak

COUNTING SECONDS

It is always more convenient to make short time exposures by counting seconds than by consulting a watch. It is, in fact, almost impossible to time a one-second exposure with a watch because the dial that records seconds is so small on most watches that in poor light the markings that indicate seconds cannot be distinctly seen.

An easy method of counting seconds, that is sufficiently accurate for photographic purposes, is to repeat a phrase that it takes one second to pronounce. It will take the majority of people one second to pronounce the words, one hundred and one, as rapidly as clear enunciation will permit. The last word of the sentence should always indicate the number of seconds that have been counted. For instance, five seconds should be counted: one hundred and one, one hundred and two, one hundred and three, one hundred and four, one hundred and five.

With a little practice, it will become a simple matter to count from 30 to 60 seconds by this method, without varying more than a second or two from the time recorded by the watch. An error of two seconds in any exposure that should be longer than five seconds can scarcely be detected in the negative.

While this is a simple and reasonably accurate way of counting seconds for short-time exposures, and will serve admirably in case of emergency even for exposures of a few minutes, yet long exposures of one minute or more should be timed with a watch whenever possible.

NEW KODAK PICTURES

Made with a No. 3 Kodak

KODAK RECORDS
OF SUMMER
SCENES

LITTLE SAND WITCHES

Illustrating the use of the camera from a low position

HIGH CAMERA OR LOW?

WHAT we call composition or arrangement in a picture is brought about mostly by our choice of point of view. A step to right or left may make or mar our picture—may make it a true *picture* or leave the effect merely of a *scene*.

There is also a consideration not only of the right or left choice, but of the *height* choice. This is, of course, particularly important in the event of foreground figures. A camera held near the ground gives a result that is sometimes startlingly different from the result acquired by holding the camera high.

The simple way to determine the effect is first to *look* from the point at which you propose to hold the camera. When you look from a standing position and hold the camera at the waist the lens is not seeing what your eyes see, and it is what the lens sees that gives you your picture.

Having looked from a point that would be waist-high, for example, you are at perfect liberty to stand upright if you hold the camera at the chosen point while making the exposure.

An interesting example of the value of a low viewpoint is furnished by the picture at the head of this article. The low level of the

EMBARRASSMENT

Illustrating use of camera held at favorable height from ground but aimed a trifle too high, cutting off figure at ankles

camera broke the horizon line with all four figures, whereas, if the camera had been held high the picture would have been cut in half by the horizon line, with a flat effect at the top. Moreover, the low viewpoint is more in sympathy with the action of the main foreground figures. It is *their* story and the artist should, and did, come to their level.

The second picture suggests another precaution. Having chosen the height for the camera, you still have the privilege of aiming slightly upward or downward. A lower *inclination* of the camera would have given this subject his feet! Yet the altitude of vision would have been practically the same.

In the case of figure portraiture, by the way, the altitude of the camera has a very important bearing on the effect of height in the figure. A camera held *low* makes the figure look taller. A camera held *high* reduces the seeming height of the figure. This is simply because of the natural habit of our eyes. If the camera has *looked up* the resulting picture suggests a figure of a height that usually forces us to look up. If the camera has *looked down* the picture will have a corresponding effect of suggesting a person in looking at whom our glance slants downward.

A camera placed at table level will naturally give us a report from a table level. If we place our eyes at that level and are satisfied with the effect, all will be well. I am thinking now of the habit, so easily formed, of studying a subject from one angle and photographing it from another. It is to warn against the disappointments of this that I have written this suggestion.

You may wish to do as I have done—make a series of experiments, marking on the autographic record each time, "height of lens," so and so.

THE MOUNTAIN PASTURE
Made with a 3A Kodak, by John Haberstroh

Fig. 1

A water foreground that is in harmony with the scene

THE WATER IN THE FOREGROUND

When we make pictures of the interesting spots that are found along streams and lakes and ponds, from a viewpoint which shows the water in the foreground, we should pay particular attention to the foreground, because a nearby body of water photographs very differently at different hours.

The reasons for this are that the surface of the water is sometimes smooth and sometimes rough, and water not only reflects light, but it also reflects images of objects, when its surface is not too much ruffled by wind or current.

The reflections from the water always have an influence on the pictorial quality of the photograph, and they may or may not be in harmony with the rest of the scene. This is demonstrated by Figs. 1 and 2 of our illustrations, the foreground of Fig. 1 being in harmony with the scene above it while the foreground of Fig. 2 is not.

The difficulty with Fig. 2 is that the top of the picture looks heavier than its base, and in a pictorial design, as well as in an architectural design, the base should appear to be able to support the superstructure.

The trees that are most prominently shown in Fig. 2 seem to be standing on an insecure base. This is purely an illusion, of course, but it is not a pleasing one, and it detracts from the pictorial merit of the picture.

This effect was caused by the strong light which the water reflected directly to the lens, and it

FIG. 2

A water foreground that makes the picture look top-heavy

is an effect which we can easily avoid obtaining; for we can either make the picture from the same viewpoint at an hour when the sun is in another position, so that the strong light from the sky will not be reflected to the lens, or, we can make it from a different viewpoint.

Before photographing the type of subjects shown in Figs. 1 and 2, some photographers stand squarely in front of the lens and note what they can see when the eyes are at the level of the lens. Others carefully observe what the finder shows. Both methods are good. Should the sunlight shine on the glass top of the finder, the finder top should be shaded with the hand so that the image can be distinctly seen in the finder.

FIG. 3 – REFLECTIONS IN A WATER FOREGROUND
Made with a 3A Special Kodak, by John Haberstroh

Mirror-like reflections, such as are shown in Fig. 3, can easily be photographed when the water is clear and its surface is perfectly smooth.

When the attractive spots that are found along creeks, rivers, small lakes and ponds are photographed at distances not exceeding 100 feet, they will usually show more dark than light tones, but when they have water in the foreground which receives the direct light from the sky, the water will reflect light to these dark tones. Under these conditions they can be photographed by giving a snapshot exposure with single lens fixed focus cameras, and by giving, on sunny days, a 1/25 second exposure with stop 16 when using cameras that have rectilinear or anastigmat lenses.

On cloudy days the exposure should be about four times as long as on days of sunshine.

FOCUSING FAR DISTANT OBJECTS

The rays of light that are reflected by an object are bent in passing through a photographic lens so that they will meet again at a certain distance behind the lens and form an image of the object.

If we use a focusing hand camera and set the focusing indicator at the twenty-five-foot mark on the focusing scale the lens will be the right distance from the film to form a sharp image of objects that are twenty-five feet from the camera and also of objects that are somewhat nearer and somewhat farther than twenty-five feet from the camera.

In order to obtain the sharpest possible images of objects that are 100 feet distant the focus must be set for 100 feet and when it is so set objects that are considerably nearer and, when a compact folding focusing camera that makes pictures not larger than $3\frac{1}{4} \times 5\frac{1}{2}$ or 4×5 is used all objects that are farther than 100 feet from the camera will be in focus.

The marks on focusing scales show that for nearby subjects the lens must be placed farther from the film than for distant subjects, but there are no marks on the scales for distances greater than 100 feet. The reason for this is that the equivalent focal length of a lens determines how far from the film a lens must be placed in order to make a sharp image of extremely distant objects. This distance is indicated by the 100-foot mark on focusing scales and if a lens is placed less than this distance from the film it cannot form a sharp image of any object whatsoever, no matter what its distance from the camera may be. Therefore, when you wish to make sharp pictures of extremely distant subjects with a folding Kodak, Premo or Brownie be sure to set the focusing indicator at the 100-foot mark on the scale.

IN SOUTHERN FRANCE

Made with a 3A Kodak

THE VALUE OF AN ALBUM

On one shelf of a book-case which stands in the corner of the library at home are several books in which every member of the family takes a greater interest than in the works of fiction, history and biography that occupy the other sections.

These are not the works of well-known authors and to the uninitiated their homely titles may not appeal, but to us, joint authors and participants in the good times so faithfully described, the books have a greater value with each succeeding year.

"On the Lakes," brings back again to each one of us the beauties of the Thousand Islands, the picturesque shores of Lakes Erie and Huron and the wild grandeur of Muskoka. The many friends met for the first time in that summer of 1912, where are they? Some we have never seen again, but they are not forgotten.

With "Summer Landscapes" we visit again many a peaceful country place that, but for this member of our library, would have been long since forgotten, and then, too, there are the biographies of Jack and Mary.

Just Albums, in which the pictures made from time to time with Mother's Folding Brownie and the Family 3A Kodak have been mounted.

There are Albums of travel, of social gatherings, of week-end trips, and of everyday scenes in and around the home, in this varied collection.

Perhaps this idea of arranging our prints in Albums according to the nature of the picture is not original, but it is a most satisfactory way whether few or many prints are made in the course of the year. In the pages of an Album the pictures are safe against loss or injury, and when arranged according to subject can easily be found when they are wanted.

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SERVICE DEPARTMENT TALKS

CLEAN LENSES.

BRILLIANT and "clean-cut" negatives can only be made with clean lenses. Such negatives record the fine gradations of light and shade which the eye sees in the subject. A dirty lens cannot transmit clearly-defined gradations of light and shade to the film. It blends them so that their outlines merge into their surroundings.

Always keep your lens clean. If dust settles on it brush it off with a small camel hair duster; then remove the filmy deposit that gathers on all glass that is freely exposed to the air. The way to do this is by breathing on the lens and then wiping it with a clean linen handkerchief that has been made soft by frequent washing.

Never wipe a lens with a silk cloth, or wash leather, or paper and never use alcohol, acid or any kind of polishing preparation on a lens. The penalty of doing so may be a damaged lens which cannot make brilliant pictures until it has been put in order by the makers.

Do not remove the lens from the shutter unless it looks foggy after its exposed surfaces have been cleaned. If it is necessary to clean its inner surfaces be sure to remove and replace one combination before removing the other. Placing the back lens where the front one belongs will make most styles of anastigmat lenses useless.

Never, under any circumstances, remove a lens from its cell (the metal rings in which it is mounted) for by so doing you will disturb the adjustment of the glasses, which may involve needless expense for repairs.

To clean a single lens that cannot be removed from the camera, open the shutter on T, as for a time exposure, then wipe the lens with a clean linen handkerchief wrapped around a small pencil shaped brush, such as artists use.

Do not clean your lens daily. It is unnecessary, but examine it frequently and clean it whenever it looks dirty or foggy, for brilliant pictures can only be made with clean lenses.

Should you encounter any problems in your photographic work that you cannot readily solve, submit them to us. We will gladly help you. There will be no charge.

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