TO our old and honoured friends, the "Imperialists" among the photographic hosts, we send sincere greetings and good-will. To our new and hoped-for friends, the Beginners, the same, and this brief message:—

If this little book pleases you, give its publishers an opportunity to show what they can do for you in dry plates of a beautiful, distinctive and delicate quality. Sold at 20,000 Dealers.

THE IMPERIAL DRY PLATE CO., LTD.
CRICKLE WOOD, LONDON, N.W.2.

Useful Points in Landscape Photography.

ANDSCAPE photography as a study is very fascinating, and its practice, results in a marked development of one's powers of observation. The desire to take home some record of a pretty scene is inherent in everyone. Thus, possessors of cameras are fortunate people.

The amateur of the present day is happily situated as to the material available with which he can pursue his hobby. Particularly is this the case with plates, for whereas it was formerly possible to buy one type only, familiarly known as "Ordinary," there are now many brands, varying in speed from about 40 to 400 H. & D., each with its special virtues. Whether this be speed, or colour sensitiveness, all Imperial Plate give negatives of unvarying high quality, with absolute freedom from fog. Where the "Special Landscape" or "Ordinary" plate is in use so great is the latitude in exposure that even novices have every chance of success with them, and when more conversant with the business of negative making, rapid brands may be used, such as the "Sovereign", "Special Rapid" or one of the three Ortho brands. With these snap-shotting is possible because of their greater speed. If an Ortho plate is the choice, then the Orthochrome Special Rapid, used with or without a colour filter on the lens, or the popular N.F. (Non-Filter) are both good. With the latter, the colour screen or filter is incorporated with the emulsion, making it possible to obtain as fully correct a result in monochrome as the use of a four times filter on the usual Ortho Plate.

With the "Ordinary" plate it is impossible to obtain proper colour values in monochrome, whereas the Ortho plate, by special treatment during manufacture, overcomes this defect and renders correctly the tone values of blues, greens and yellows, the predominating landscape colours. Where much colour is present in a subject, as a garden, for instance, whether colour is present or not, they give as good a result as can be obtained on any plate.
The use of the Imperial Exposure Meter simplifies the exposure problem. In use, the time occupied to colour the sensitive paper to the standard tint is noted, and then the scale being set, the exposure required for all stops is seen at a glance. This naturally varies according to the type of subject, whether its tones are heavy or light, as also its distance from the camera. The little book enclosed with each meter makes everything perfectly clear. For the sum of 1/6d there is probably nothing so cheap in photography as this reliable instrument.

Any kind of camera can be used in landscape work, but undoubtedly one with a focusing screen is the ideal type, as it is then possible to compose the subject on the ground glass before the plate is exposed. Success in the production of a picture is assured if a few considerations are borne in mind, such as the selection of the view-point, the direction of the lighting, the height of the camera above the ground, and the form and position of the various component parts of the composition. As to lighting, it is unquestionable that some of the most delightful effects are obtained when the sun is in front, or whereabouts, of the camera position. Pretty light and shadow effects are the rule when the lighting is from the side and the least effective results generally obtain when it is from behind the camera. To shield the lens from the sun's rays during the exposure is advisable, especially when the camera is facing the source of light. A simple tube of blackened card about ½" to 1" long will answer quite well, and prevent the plate from being fogged. The use of backed plates is advisable, as otherwise a good rendering of the delicate tracery of trees against the sky, is not usually possible.

The height of the camera is important in many subjects. Sometimes it is necessary to have it at eye-level, at others, as low as a foot from the ground. In the picture sense every subject should have a centre of interest, to which all else should be more or less subordinate. Its position may be almost anywhere excepting the centre of the picture, or at, or near, any of the edges of the print. In the world of art, one of the most beautiful lines is known as Hogarth's line of beauty, which, in its form of an S, or S reversed, is of great value in picture making. It is often seen in the direction taken by paths, streams, etc., and is so called because of its effective use by Hogarth, the great English painter, in all his pictures. This line forms a particularly useful feature in a composition when it leads the eye into the picture, as the undergrowth in Illustration No. 1, and the path leading to the cottage door in No. 2. Correct tone values are generally necessary to make the picture a success and are the most pleasing to the trained eye. The darkest tones should be in the immediate foreground as a general rule, toning away to delicate grays in the distance and the sky. As the subject recedes towards the horizon, the darker tones should become more delicate because of the intervening atmosphere. Correct exposure is the key to success in the production of the negative of good gradation, which in its turn gives a print with tone values that are correct.

In illustration No. 3, the essential feature of the composition, the curved pathway from the gate to the church door, was secured by raising the camera to eye level. At the other extreme illustration No. 1 shows a subject where it was necessary to have the camera very low down, within a foot of the ground in fact. The undergrowth in the lower part of the subject forms a line which leads the eye to the old mill, the centre of interest. Had the camera been at the usual height this would have been "overlooked" and not only would the composition have lost a valuable leading line, but the weight of tone, as also the interest it adds to the subject, are just what is required to balance the greater tree-space on the left.

Landscapes in which water forms a principal part of the subject-matter are popular with most photographers, and an old water-mill with its reflections in the mill-pond generally proves tempting material to the photographer. It is well to remember that at least some portion of the near bank of the stream should be included in the composition as this gives greater stability to the picture. Illustrations 4 and 5 show the same subject with and without a little of the immediate foreground formed by the near bank, and it will at once be seen that No. 5 is by far the better picture of the two, for the near-by bushes give strength to the composition where it is most necessary, converting thereby a top-heavy composition into a satisfactory one by a re-adjustment of the component parts of the subject.

Sometimes a straight line, or lines across a picture, spoil an otherwise good composition. It may be a line of fencing, a hedge or the bank of a river. Illustration No. 6, shows the straight lines of a couple of boats which marred the otherwise very pretty river scene. This unsatisfactory portion was got over by the inclusion of the lady on the river's bank, all intent on her book, and apparently unconscious of the photographer's presence.

In subjects where a figure or figures in action form a part of the picture, as the punting scene in illustration No. 7, a very satisfactory way is to carefully arrange the composition on the focusing screen, or viewfinder and noting the point where the animate life is desired. When this is satisfactorily arranged, the plate can be placed in position, and the shutter adjusted, after which it is only necessary to make the exposure at the psychological moment. With this methodical way of working it is much more likely that a good subject will be secured than by indiscriminate "snapping". Illustration No. 8 shows an unsatisfactory composition resulting from the line of the river bank running out of the picture at the left side, as also the straight line of the opposite bank, only broken by a small uninteresting bush. It fails because it lacks a line leading into the subject, which is interesting enough in itself.

When does a landscape with figure, become a figure subject with a landscape setting? may be asked. As a rule this ensues when the figure dominates the picture space. Illustration No. 9 shows a lady in a grace-
ful attitude gathering a handful of flowers. So interesting in herself, and
dominating in tone because of the way she stands out from the background,
the figure at once becomes the subject of the picture. It is necessary to
exercise discretion when figures are introduced into a landscape. As has
been shown, they are a decided acquisition at times, but it is nevertheless
easier to spoil a landscape by their introduction than is generally imagined.
Unless there is some reason for their presence it is better to leave them out.
A very small figure is usually all that is required and the dress should be
simple and not too fashionable in style, so that it will not "date" so soon.
Its position should never be the centre of the picture space, nor close to any
of the edges of the print.

**Child Portraiture.**

This article is contributed by two eminent photographers (Carine and Will
Cadby) whose delightful pictures of children are very familiar to the readers of
the photographic papers. These famous amateurs regularly use "Imperials."

"You can do anything with children if you play with them" remarked
Bismark (if one dare quote him now), and the photographer soon discovers
the truth of this. It is the greatest mistake to think child photography is
difficult, it is the very easiest, the most interesting and as a rule the most
satisfactory of any. In using the term satisfactory, we mean that other

people as well as those immediately concerned appreciate the results. A
snapshot of a child, let it be ever so bad, has nearly always something attractive
about it, for children, unlike most grown-ups, can be taken unawares, or
even in deshabille without looking ridiculous. But there is no reason why
the thousands of mothers and fathers and uncles and aunts, who are daily
exposing plates on their near and youthful relatives, should not do the best
both with the plates and the children. There is no hidden secret in this work
that even the beginner cannot master very quickly. The factors are quite
simple: the CAMERA, the PLATE, the LIGHT and the MODEL. That is all,
for the limits of this article will not allow us to consider composition, and we
propose to make a few suggestions under each heading.

**THE CAMERA.** It is not beyond the truth to say that ANY camera will
make good studies of children. How often does one hear the remark when
looking at a successful portrait, "Oh, but so and so has a splendid camera,
or "He has a wonderful lens," just as if either of these quite useful, but not
fundamental, adjuncts had been responsible for the picture. This is letting
magic into the business, and there really is no necessity. We do not credit
the sculptor's chisel or the painter's brush with the work done, and it is almost
as misleading to do so with photography. An extra rapid lens, or a camera
that enables a picture to be taken while yet we are focussing, are convenient
tools in skilled hands, but nothing more, and there is no reason why the
cheapest little camera should not yield as good results under certain conditions
as the most luxuriously appointed reflex outfit.

And so our advice as to cameras is, use what you have, but find out the
limitations and capabilities of your own particular bit of apparatus, and do
not attempt to make it do work for which it was never intended. For in-
stance, if it belongs to the small box variety of camera, with a slow lens,
don't expect good results if you try snap-shotting the children at their bath
in a dim nursery at twilight. But these same little instruments will, with
sufficient light, give excellent pictures, and they are best used out of doors
with a good bright light, as the lenses attached to them are generally slow.
But if the photograph must be done in a room, then a time exposure
be made and the camera fixed up firmly on a table, or better still on a small
tripod.

**PLATES.** Just now we referred to fast and slow lenses. A very rapid
lens working at say f/4.5 is at times a great help. With it good results may
be obtained when the light is weak, and often that is just the time when the
children look their best. But if we do not possess one of these costly instru-
ments we can surmount the difficulty by using ultra rapid plates. Our own
practice when taking children indoors is to use Imperial Flashlight plates.
Our "studio" is only a well-lighted room facing North and West, the walls
and ceiling of which are white, and under these simple conditions a bulb
exposure of about ¼-second gives generally good results from April to Septem-
ber, with the lens stopped down to f/8.

We need hardly say this rough and ready formula has to be varied ac-
cording to the light, and that there are days when big white clouds make
the light so intense that a so-called instantaneous shutter has to be used, or
the lens further reduced in aperture. It is popularly supposed that it is
more difficult to get density with these ultra rapid plates. There may be a 
grain of truth in it, but it certainly is not a large one, especially if one of the 
developing formulae given on each box of plates is used, and the directions 
followed exactly. Naturally extra care must be taken to ensure that the 
light employed for development, for the eventual print depends on the quality 
of the negative for much of its charm. For some years now there has been a fashion to 
photograph children against a very light or perfectly white background, and 
without any intentional insult to draughtsmen the results have been called “Sketch Portraits.” There is no better style for small children if only the 
whole scheme is kept light in effect. To attain this we must have a full 
exposure and not too concentrated developer. Sketch portraits are a travesty 
of their title if the little sitter’s legs and arms stand out black against the 
white background, which they will surely do in most cases if we make what 
is often described as a good plucky negative. And here we are probably 
giving advice as to development contrary to that offered by the makers of 
the plates; but it must be remembered it is for a particular purpose, our aim 
being to get a certain effect in the finished print that is not obtainable with 
a technically perfect negative, unless the surroundings, lighting and clothes 
of the sitter have been deliberately modified beforehand to give the sketch-
like effect direct, which in practice is seldom possible.

THE LIGHT. Very few amateurs realize the vital importance of lighting. 
Professionals study it exhaustively, but mainly from the point of view of 
making us look our best, that is, from the professional’s point of view. If 
we are taking out-of-door portraits, it is wise to avoid mid-day. The source 
of light then (at least during the summer months) is right over head, and 
seldom gives a pleasing effect, neither does it usually suggest a truthful out-
line of the features. Late afternoon, when the sun has got lower in the sky, 
is always a more hopeful time for work, for the light is less glaring, and does 
not strike down on the face. But even then must we wait until the sun has 
gone behind a cloud to get the best effects. No doubt sun-flecked studies 
of children can be delightful, but they are difficult for several reasons, and 
should not be attempted by the beginner.

When we come to think about it we realize that the children are most often 
seen indoors, consequently an indoor lighting is likely to give us the truest 
studies. But here comes in the difficulty of rapid exposures which are so 
necessary with little sitters, and this is one reason why we advocate working 
in as light a room as possible. Modern decoration is not against white walls 
and ceiling, and so it comes about that many ordinary living rooms are quite 
suited for our purpose, and indeed do away with the necessity of back-
grounds altogether, a cheering simplification in what must be an upsetting 
intellectual influence in the household life.

To get the maximum value of light where there is only one window, the 
camera and the sitter should be placed somewhat as indicated in Diagram I. 
But if our room is a corner one, and has two windows on different sides, then 
we have more latitude and more light, as in Diagram II, and if the position 
of the camera is adhered to, the double source of illumination will not be 
observable in the print. With this kind of lighting we get a flat effect, as in 
the illustrations given, and no reflectors are necessary, and we view the 
children much as they appear in an ordinary room.

THE MODEL. We have but small space left wherein to consider the little 
sitter. If it be a girl, we shall probably find, however young, that she is 
inclined to pose, and is quite interested in her picture. Boys are likely to 
be self-conscious and awkward, so the best way with either sex is to get them 
interested over toys or a book, so that they forget themselves. We must try 
and suggest, without saying it in so many words, that they stay in their own 
bit of ground, which is duly focussed. We then wait for favourable normal 
expression, making our exposures silently and without letting the children 
into the secret. Naturally this can’t be done if the light is too weak to admit 
of short bulb exposures, but even then it is often possible to give quite a 
lengthy exposure, say a second or more, without movement, for we have 
found that although children are undoubtedly volatile and nearly always 
on the move, there are comparatively regular and natural short intervals of 
stillness that give ample time to take a photograph.

But this work needs two people. The man at the camera misses chances 
if he is devoting himself to the children, besides which, he draws their attention 
to the camera, which is likely to induce self-consciousness. The control and 
amusement should be left to an intelligent and sympathetic helper, upon 
whom very largely depends the success of the picture. These at least are 
our own methods, developed during a number of years, and followed, whether 
we are doing book illustration pictures or ordinary portraits of children.

A COMPLETE LIST OF THE IMPERIAL PLATES — a Booklet — Free on Application.
Why is the Pyro-Soda Developer specially Suitable for Amateurs?

For upwards of twenty years the writer has read letters from amateurs asking advice, and as a result, has no hesitation in saying that habitual users of the pyro-soda developer meet with fewer troubles in the process of development than those workers who dodge about from one developer to another. It is a wise plan to keep to any one developer for negative work, no matter what the developing agent may be.

Pyro is the oldest developer, keeps well when properly made up, is by far the easiest to use and, in the hands of those who know how to use it, may be made to produce any kind of negative. It is also an ideal developer for incorrect and unknown exposures. The only thing cautious critics can complain of is its dirtiness as compared with other developers, and its power of staining; the latter, however, may be easily remedied.

Pyro as a developer appears in photographic lists bearing the date of 1845, at which time it cost 17/6 per oz.; in 1857, however, the price had dropped to 5/6 per oz., because of its becoming more common. When dry plates were first introduced pyro had been in use as a developer for the other forms of photographic images for many years, and having gained a position in the art of photography, pyro was in most cases recommended as the one and only developer for dry plates. In those early days pyro was used in conjunction with ammonia, a form of developer still used by some, but ammonia is a somewhat uncertain and unreliable product, and it was a good day for photography when ammonia was displaced by soda. Pyro-soda may be said to have taken the place of pyro-ammonia in the dark-room—of the average photographer at any rate—in the winter of 1890-1 and it has never lost the high position it won for itself in those bygone days in spite of the introduction of some dozens of other developing agents, which came mainly from Germany.

A solution of pyro must be properly compounded if it is wanted to keep clear and good for any length of time. Solutions wrongly made up become brown or black in colour, and while such solutions will usually develop a clear and good image, the image to make its first appearance allows the worker to more accurately note the time that elapses between the pouring on of the developer and the appearance of the image, should be wish to adopt the factorial system of development, by which plan the time of appearance is multiplied by 4 in order to ascertain the total time of development.

It is not wise to use a pyro developer more than twice, it is better in fact to use it but once, as the darkened (oxidized) pyro may form an insoluble compound which deposits from the developer, and a twice-used developer is often the unsuspected cause of spots and air-bubbles upon the film, as well as stained negatives.

The colour of pyro-developed negatives has already been mentioned, also the possibility of getting either black, brown or yellowish negatives by the regulation of the sulphite. Yellow-stained negatives, however are sometimes met with when the purest of sulphite is used, and the defect is caused by using too little developing solution, thus causing the film wet with developer to be exposed to the air. The negative should be kept from the air as much as possible while the developer is upon it, and the simple act of holding the negative to the light for examination of density will cause staining.

A perfectly-developed pyro-soda image should be greenish or yellowish-black in colour, a tint that will give the finest prints, particularly upon P.O.P. Many prefer to secure negatives of a distinct yellow colour, maintaining that such yellow-stained negatives give the best prints because of the non-actinic colour of the image; such negatives, however, are as a rule very slow printers. Pyro-developed negatives rarely look so clean and "pretty" as plates developed with cleaner-working solutions, but the proof of the quality of a negative is not its outward appearance, but the print it gives, and the most repulsive-looking pyro-developed negative will often give the most perfect prints.

"Camera Landscapists"

A Dawn-memory and 12 Tips for Beginners.

Camra-landscapists' days are divine. Well do I remember early photographic days when as a youth I would tramp miles midst glades and woods and hedgerows, a heavy field-outfit on back, just to get pictures.

How marvellous seem all our yesterdays! Some laughing philosopher says a yesterday is one evil the less and one memory the more. And yet, all landscapists' yesterdays make beautiful memories. Before I write out some hints and tips of old experience, will the reader permit one short sketch of a landscapist's watching of dawn and sunrise?

Four a.m. right out in the country! It is almost dark—the nightingales have gone to bed; all the mysterious noises of the night's forenoon have ceased. Even the stars have slunk away. You wait, expectant.

There is scarcely anything to be seen at first—only dark, spectral shapes that stand against the blue-black of the sky. Nature so far is behind a veil of mist, upon which some masses of form are vaguely, greyly sketched. The damp sweet incense of the Spring is in the air.

You grow expectant, you wait, you listen, you hold your breath. Everything in Nature seems to tremble with a delight, half pain, under the in-vigorating caress of the coming day. You wait, you peer, you listen.
Dawn does not come all at once. It steals upon you by leaps and subtle strides like soldiers deploying slyly from a trench. Now the first ray is suffusing itself across an arc of purple sky.

More shivering rays of yellow light shiver in the sky—the East is all aglow. Now the flowers at your feet seem as if waking, in joyous mood. And the chirrup of the birds is heard; how they do sing! The leaves of trees feel the cool breath of morning and are moving to and fro in the invigorating air. Insects, with gauzy wings, perch on tall blades of grass in the meadows; flowers of the field are swaying in a morning minuet. How beautiful it all is.

Soon the white mist lifts up like a curtain. You perceive the river, like a silver ribbon winding in and out, and stretching far away. And the masses of the trees now come clearly out, poplars, leaning willows; the meadows too, all are revealed by the mist that is reeling and rolling up the hillside. You photograph, and photograph, and photograph.

So here, then, are some notes and hints on landscape work. Just writings done while mousing in old notebooks.

THE TRIPOD SCREW would never be left behind if you carried it on your key-ring. You can find a way to attach it. Alternatively, pierce through its head a tiny hole, patiently drilling even with a knife or bradawl, and tie it by a cord to tripod-head.

IN WINDY WEATHER have a piece of elastic on your focussing cloth, to bind it loosely round your head when looking at your screen.

SUNLIGHT can be suggested in landscape pictures, not so much by those bright lights and strong shadows so often done, but by a general lightness of tone, the transparent shadows showing much detail. Many sunlight pictures are under-exposed, over-developed. Expose more for the shadows.

STRONGLY-LIT SKIES should be taken with a lens of greater focal length than that used for the landscape, and printed in separately, unless using Imperial Orthos and Filters to get both in same plate. To the eye a luminous object appears much larger than the same less brightly lit hence the suggestion.

EXCESSIVE FOREGROUND can be shortened by lowering your tripod. We have seen photographs made from a point as low as one foot from the ground, with real advantage. To get big foregrounds photograph from eye-level, as pressmen do.

STILL WATER in your foreground should be rippled by throwing in a pebble, just before exposure. Even as the fame of the negatives done with one little box of Imperials can spread away and away in ever-widening talk-circles beyond all knowing, so does this pebble create ripple-circles that add charm to the pool in your picture.

PERFECTLY LEVEL HORIZONS are necessary in open views; a safe plan is to put your horizon at one-third the height of the plate from top or bottom. A very old artistic plan, that.

WAVING FOLIAGE, curious to relate, will show less movement with a long exposure than a short one. If using a four or eight-times screen or light filter, on a Special Rapid Imperial Ortho plate, the screen will so slow your exposures that this can be given even with large aperture. However brisk the breeze, a waving branch and leaves always pass through and return to a normal point, and that is what is shown by your plate in slow exposures.

IN GLENS AND GLADES beware of under-exposure, and of halation in those bits of sky that peer through trees. But sometimes a little halation is desirable, say in an orchard with sun shining through trees. Mostly, use an exposure-meter and backed Imperial Ortho plates.
THE IMPRESSION OF MOTION. and true delineation of a moving object, are quite different things. The former demands more skill than fast exposure. Remember this when doing waterfalls. A long exposure gives details in the water as well as the important detail, omitted from too rapid snaps, in shadows under rocks and trees. The only untruth of a long-exposed water picture is that the fall may look fuller of water than it is. Hence, it is good to photograph them when not over-full.

DISTANT HILLS demand really a lens of the greatest focal length possible, and the camera should be placed remote from prominent foreground unless artistic foreground "framework" and the effect of distance or atmospheric planes be desired. With a long focus lens the puerile dwarfing of distant high land is avoided.

For landscape work Imperial Orthochromes are unexcelled. I am just looking at a recent landscape done on an Imperial Non-Filter plate. The "Landscape greens" are wonderfully truly rendered; and there are clouds that are a tint of the blue Summer sky. A "Non-Filter" picture is very, very satisfying.

When to Stop Development

The all-important question of how long or how far one should develop a plate or a film is one that has bothered amateurs from the earliest days of photography. Experience, however, soon teaches if one keeps to one make of plate and the same developer—which all should do when beginning photography—but, as Benjamin Franklin wrote; "experience keeps a dear school," and the beginner can buy his experience the better he likes it.

A worker of to-day is fortunate in having certain systems of development put before him for the purpose of assisting him to secure as perfect negatives as his exposures will give, systems that have been very carefully worked out by experts and heartily endorsed by others. But in spite of the proved worth of systems they are considered as some so far too mechanical, and not to leave enough scope for those who pride themselves upon their skill and judgment, hence the continued popularity of the old-fashioned method known as "dish development," a plan which enables the worker to watch the gradual building up of the image upon the sensitive film, and to use his discretion as to the precise moment at which to take the plate from the developer.

When adopting dish or tentative development it is advisable to thoroughly understand the working of the developer, and not to change from one developer to another without a very good reason for so doing. Developers differ widely in their characteristics, and although all of them may produce perfect negatives they do it in different ways. This particular point may be best understood by taking an imaginary case. Suppose we have two plates exposed correctly on the same subject, and decide to develop one with pyro-soda and the other with the "Universal" developer, both made up according to the Imperial formulae, what will happen? The plate in the pyro-soda developer will show the first sign of an image—the highest light—in, say, 75 seconds, the half-tones will gradually appear and finally the details in the shadows, development being complete in, say, eight minutes. The plate in the "Universal" (hydroquinone with metol or its equivalent) will show the first trace of an image in, say, twelve seconds and very soon veil over, but (assuming the temperatures of both developers are normal) in spite of the appearance of being over-exposed the proper density may not be secured until six minutes have elapsed. Thus, in the cases quoted, although the time of appearance has been very different, the result in the end, and because of carrying development to its proper depth, printing densities of the two negatives will be practically the same. But how do we know the proper depth of development? In the case quoted, experience and the factorial system have given it.

If we put aside the mechanical system, so-called, it is a fairly safe rule, if the plate is thinly coated, to develop until the sky or highest light—a white collar in the case of a portrait—is well visible from the back or glass side of the plate. On the other hand this rule does not hold good when a thickly-coated plate is being developed, and, if followed, would lead to excessive density, which, after all, is in most cases better than undue thinness, a thing most beginners complain about. Looking through the plate from the film side to see if the image is dense enough is generally the safest rule if the same red light is always used for the examination. If the red lights vary the apparent density of the negatives may vary, the beginner being led astray by the dimness of the light.

Another point to remember when judging density visually is that pyro-developed negatives lose less density in the fixing bath than those developed with the cleaner-working developers. It need hardly be said that the longer a negative is kept in the developer the stronger will it be, and the worker may be guided to some extent by the printing process he intends to use. P.O.P. (probably instead, requires a stronger (further-developed) negative than does gaslight or bromide paper. Those workers who develop in a dish must therefore never judge the density of a negative by the appearance of the surface as it lies in a dish, but always by looking through it, at the same time remembering the amount of density that is likely to be taken away by the fixing bath.

The two principal systems of development introduced to assist amateurs in the art of developing properly may be outlined very briefly. Factorial development is a system introduced by Mr. Watkins, and is founded on the fact that there is a definite ratio between the time of appearance of the first high light and the total time of development to give a certain density or printing power. If the factorial number of a developer is given, say, as six, it simply means that the negative must be developed six times as long as it has taken for the highest light to first show itself. Each developing solution has its own factorial number, and the higher the number, the better for short-developing solutions, because the latter hasten or retard the time of appearance, and likewise the total time of development. Although the factors as given officially are such as will be found to be generally correct, yet if the resulting negatives with any given factor be not such as to please the worker it may be increased or decreased. A lower factor than that given means a softer negative, while a higher factor will give a more dense result. Example: Suppose a developer has a factor of five, and the time between the pouring on of the developer and the first appearance of the image is 100 seconds, the plate should be developed for 500 seconds—eight minutes, twenty seconds. If, however, a the intensity or dimness of the light.

The official factors for the Imperial developers are: Pyro-soda 4.4; Hydroquinone 4.5; single solution 20, and Universal 30. The system is an excellent one for a beginner when plates are correctly exposed, or very nearly so, but it fails when plates are over or under-exposed, because it leads to the under-development of over-exposures and the over-development of under-exposures.

The tank system is another help to photographers and a favourite one. Plates are placed in a tank filled with a weakened developer and developed for a given time—a time calculated to give the best result from a correctly-exposed negative, a time which will also give the best result from an under- or over-exposed negative. This plan of developing incorrectly exposed negatives for the same time as negatives correctly exposed has much to recommend it, as it prevents the under-development of over-exposures and the over-development of under-exposures, common errors in amateur work.

Formulæ and times are given by makers of plates and developers, and they may also be found in all good text books. The makers of Azol, for instance, have made a speciality of tank development times and an example from their tables may be given. One part of Azol mixed with 100 parts of water, used
at 65 deg. Fahr., will develop an Imperial "Special Rapid" plate in forty-five minutes. Some workers have made a speciality of what are known as "twenty minute developers," i.e., developers which should be used for twenty minutes. One formula for a tank solution of this variety is: Water 12 ozs.; soda sulphite crystals 60 grs.; carbonate of soda 40 grs.; pyro 10 grs. This must be made just before use and used at a temperature of exactly 65 deg. Fahr.

Another point to remember is that some plates need longer development than others, because of the nature of the sensitive emulsion. The Imperial plates that need the longest development are the "Special Sensitive," "Special Rapid" and "Flashlight," while those that need the least time are the "Ordinary" and "Fine Grain": the medium being the "Sovereign," "Special Rapid Ortho," and "Special Sensitive Ortho." In other words the more rapid the plate the more development it needs, more especially with the cleaner (water-like) developers.

The Mystery of the Latent Image

When a plate has been exposed to light in the camera no alteration can be seen in it if it be looked at, yet we know that a developer would be able to produce a negative image—that some change has been effected by the rays of light falling upon it during exposure.

The invisible picture which it requires the action of a developer to produce is known as the "latent image": it will remain unaltered for almost any length of time, so that plates exposed during a long holiday can be developed months later if necessary.

The latent image has been the cause of endless speculation and experiment as to its character, but modern chemists are generally of opinion that it consists of either silver sub-bromide or metallic silver, or a silver bromide altered by what is termed oxidation.

The creamy substance with which a plate is coated is a mixture of silver bromide and gelatine, made in the form of an emulsion. Silver bromide is very sensitive to light, so that an exposure of a thousandth part of a second in the camera will so alter it as to produce this latent image. Silver and bromine are two elements which combine to form silver bromide, represented by the chemical formula AgBr. (Ag silver, Br Bromine). The effect of the light during exposure may be to produce a new salt containing only half as much bromine to the silver, and written AgBr-. or it may even turn the bromide into metallic silver—Ag. Whatever the action, it takes place on so small a scale that the alteration in the film is invisible. Some theorists assert that the whole of the exposed parts of the film become altered in a purely physical way. One remarkable feature of the process whatever it may be, is that by giving prolonged exposure a reversed effect is obtained, i.e., we get a positive instead of a negative on development; this phenomenon is known as reversal, or solarization.

What happens to the latent image during development is the thing that matters to the photographer. The subiler invisible effect caused by exposure has rendered the silver bromide unstable, and on putting the plate into a developing solution, the exposed parts gradually become visible, owing to the silver bromide losing its bromine, and becoming chemically reduced to metallic silver of a dead black variety.

A developer is merely a chemical reducer, and the process of ridding a metallic salt, such as silver bromide, of its associated matter, and liberating it in the form of a metal, is termed reduction. Pyro, Metol, Hydroquinone and so on, are all reducing agents: they are used in conjunction with sodium carbonate or "accelerators" in order that the latter may combine with the bromine which is set free during development.

But—the silver bromide is not affected by them until it has been exposed to light; hence only the latent image develops to a black negative picture: the unexposed parts of the film have to be dissolved away by means of the fixing bath, which is merely a solvent of silver bromide. The final negative consists of an image of pure silver metal in its gelatine film.

Light and Shade in Photography

While it is perfectly true that the word "photography" is derived from the Greek equivalent for "light-painting," it is early realized by the student that "shade" has quite as much to do with an artistic result as the mechanical action of light, plus the flair of the operator for a "picture."

Go to a picture gallery and study the paintings. What are the subtle elements which make a picture so satisfying to the mind that appreciates the beautiful? Surely it is the manner in which the artist interprets the atmosphere of light and shade! It is that perception of "atmosphere" which makes the difference between crudity and art.

And what is the artist doing? Imitating nature.

And what does the camera artist do? He captures nature in her fleeting moods of light and shade, and if he has the "seeing eye" produces a study the inherent charm of which is that it is a reflex of nature.

Some maintain that the rendering of shadow is even more important when making pictures in monochrome than it is when using colours, because of having to make up for the camera’s failure to see, or picture, colour in its proper visual value.

The study of shade, or shadow, and the rendering of the same in a photograph, is as important as the studying and picturing of the high-lights, as it is the contrast of light and shade that gives us brilliancy, roundness and "life," which are the predominant characteristics of really good photographs. Where such contrasts (not necessarily severe) are missing from a subject the true photographic copy of the same must of necessity be flat and lifeless, as no tricks can ever make up for the shape of under-exposure, over-development, or intensification.

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Writers on photographic and other forms of pictorial art are fond of telling budding camera users that they should read Burnett’s and others’ essays of art, study well what they have to say on composition, light and shade (Chiaro oscuro), etc., and then to examine the Old Masters, particularly the Dutch. Excellent advice no doubt. But the amateur of to-day can better study the parts light and shade play in successful picture-making at a cinema show, as some of the settings and posings by cinema “producers,” notably the American, are truly wonderful examples of artistic and most effective lighting and the play of light and the shadows it gives produces results that may be said to knock the pictorial efforts of some of the Old Dutch painters, who were recognised masters of chiaro oscuro, into the proverbial “cocked hat.”

It is affirmed by those who know, that if the recognised principles of light and shade, as applied to art, were more fully understood by photographers there would be fewer pictorial failures in the shape of flat and lifeless results.

Many pictures, it is true, are failures because of the absence of effective shadow, and the craze on the part of the amateur to-day for brilliantly-lighted subjects may be due to the advice given in the text-books of a generation or more ago, advice which is being repeated to-day, namely, always to expose with the sun shining from a point behind one’s shoulder.

In the days before Imperial plates, and a time when lenses were neither the rapid nor the perfect instruments they are to-day, brilliant sunlight on almost every portion of the view was essential when quick exposures were called for. Too much shade or too deep shadows were in a sense drawbacks to rapid work, and the all-important shadow for the making of a really artistic
picture could not be called into service. But to-day when plates and lenses are so perfect more attention can be given to the picture-making value of the artistic play of light and shade, as deep shadows in conjunction with brilliant high-lights are not the terrors they were to the photographers of a generation ago.

Shade indicates relief, reveals form, and everything that has form has light and shade, since the different parts of an object are inclined at different angles to the direction of light, they reflect different degrees of luminosity. Even if an object be perfectly lighted, however, many may fail to picture it properly by photography, and it is of little use waiting perhaps hours before the light and shade seen in a view are in perfect harmony, or spending a lot of time in posing and lighting a portrait, if all the delicate play of light and shade is lost in the negative because of improper exposure or development.

Much more might be said about the parts light and shade play in pictorial work, but it is the camera’s rendering of the same that is the concern of many as it is a point on which all camera men are not in perfect agreement. One has only, for example, to make the statement before a meeting of capable photographers that should a passing cloud obscure the sun exposure for shadows must be shorter than when such shadows are cast by direct sunlight to invoke a most heated discussion. The point is an old one, and dates from the time of the old saying: “When the wind is in the east, double the exposure at least,” but old as the “street shadow” question is it has never been settled to the satisfaction of everybody, simply because no two camera men have exactly the same appreciation of shade values.

The shady side of a street during the time of bright sunlight certainly appears to the eye of a darker shade than when the light is diffused by light fleecy clouds, but the eye plays many little tricks and the apparent darkness of the shadow side of a street may be written down as an optical illusion while any photographic evidence made to support the “darker in sunlight” theory, may be said to be due entirely to the effect of strong contrasts.

In the darkest cast shadows in nature there is always some light, although bright light, the cast shadow may seem absolute blackness, and utterly devoid of light. The quality or extent of shadow is perhaps even more deceiving to the eye than light. One might imagine, for instance, that a dead black object, say a piece of dead black paper or painted wood, was as black as it was possible for it to be when seen in day or artificial light, but such is not the case, because one can cast a shadow upon it and make it darker.

Amateurs who make exposures in Egypt or in any other sunny climes invariably complain of the deep shadows pictured by the photographs they take, shadows which very often are devoid of any detail. Such defects, as the writer knows from some years of experience in the Near East, are invariably due to under-exposure, the average worker being grossly deceived by the brilliancy of the high-lights and the lighting in general, and exposing accordingly, forgetting the old adage which tells us to “expose for the shadows and let the high-lights take care of themselves.” The camera is prone to increase such contrasts and the photographer will be wise to take particular note of the shadows at all times, and, providing there is no under-exposure, proper development in conjunction with the enormous latitude of modern emulsions will do the rest.

Orthochromatic Plates

A Little Article for the Uninitiated

Sunlight consists of a variety of rays of different colours, some of which are invisible to the human eye, such as the ultra-violet and infra-red. If we pass white light through a prism, it becomes split up into these different colours, ultra-violet merging into violet and blue, green and yellow-orange following next, and the spectrum ending in red and infra-red.

We have only to look at the paints in a paint-box to see that yellow is the colour which appears brightest to the eye; green and orange come next in order of brightness, then blue and dark red, and lastly, violet.

If we took a photograph of the paints, the violet would come out brightest (i.e., densest in the negative); blue and green would appear next brightest, and yellow and red would scarcely show. In other words, the plate does not “see” colours as we do, and we can therefore hardly expect it to record such subjects as flowers, landscapes, drapery, etc., in their proper tones. The plate is colour-blind: it requires certain aids to vision, just as bad eyesight requires the use of glasses.

An orthochromic plate is thus a plate which has been corrected for defective “vision” or sensitivity; the Imperial Special Rapid and Special Sensitive Orthochrome plates have been rendered sensitive to green, yellow and orange rays. But plates, unlike the eyes can “see” the ultra-violet rays, and these rays have such a powerful effect on the plate that in order to get a really satisfactory rendering of coloured objects we have to filter them out, by using a yellow filter or screen, in front of (or behind) the lens.

The effect of the blue-violet rays is also disproportionately great so that the screen has to be made a rather deeper yellow in order to tone down their effect.

The use of a screen or light filter involves its adaptation to the lens, and is not always convenient. The Imperial Non-Filter plate has been made in order to obviate the necessity for a screen; in this plate the screen is in the emulsion; no filter is necessary for average subjects, and the extraordinary rapidity of the plate makes it possible to give quite rapid exposures, whereas if we use an Orthochrome plate with a yellow screen we have to increase the normal exposure by anything from three to ten times, depending on the depth of the screen used.

Now since orthochromatic plates are sensitive to green, yellow and orange rays it is clear we cannot use a green or orange light in the dark-room. A real ruby light only can be employed, otherwise the plates will become fogged. This is the only precaution that need be taken in using them.

One other point deserves mention. It has been found that colour-sensitive plates are apt to give harder contrasts in the negatives than ordinary plate; the scale of gradation is steeper. We can counteract this by modifying the developer, using rather more carbonate or accelerator and less reducing agent; in most cases using more B solution and less A. Diluting the developer with twenty-five per cent of water will have a similar effect. But full exposure is the best means to produce a perfect negative, and it may be borne in mind that when a screen is used, a x4 screen is used, we have also four times the latitude in exposure; and where a liberal exposure is possible, it should be given.

Photographic Chemicals

What to Stock and How to Preserve them

Every dark-room should be provided with a stock of chemicals, and a pair of scales for weighing. The successful amateur is usually a careful chemist, and has at hand a supply of all the chemicals ordinarily required. It is a good plan to keep also a small stock, in the dark-room, of chemicals only occasionally required; there are not many of these, and the day is sure to come when one or other of them will be wanted.

Plates involve the use of chemicals for compounding developers, fixing and alum baths, and occasionally reducers and intensifiers. For P.O.P., we require in addition chemicals for the toning bath or combined bath. A small stock of acid for cleaning dishes will be wanted as well.
Most amateurs use one particular developer for plates, and perhaps another for bromide and gaslight papers. Such as, for example, pyro-soda for plates and metol-hydroquinone for development papers. In this case pyrogallic acid, metol (or Scalol or Monomet) and hydroquinone should be stocked; an ounce or two of each, and half a pound of preservative—potassium metabisulphite usually; a pound each of sodium sulphite and sodium carbonate should be stocked, crystals are most frequently given in formulae—and an ounce of potassium bromide. A further ounce of bromide dissolved in ten ounces of water should be kept as a stock solution for restraining development in case of over-exposure, etc.

Many chemicals deteriorate unless kept under proper conditions. Developing agents such as metol or amidol must be kept tightly corked, and in a dark place. Sodium sulphite readily takes up oxygen from the air and ining agents such as metol or amidol must be kept tightly corked, and in a dark place. Sodium sulphite readily takes up oxygen from the air and in a dark place. Sodium sulphite readily takes up oxygen from the air and becomes sodium sulphate; hence it must be kept tightly corked, and never left in a paper packet. Caustic soda and potash are extremely deliquescent, i.e., they absorb moisture readily, and will quickly become liquid, when they cannot be weighed. They should either be kept in bottles provided with rubber corks, or the ordinary corks should be run round with wax after the bottle is done with for the time being.

A supply of distilled water should be kept in the dark-room for two reasons. Firstly, because tap-water contains a good deal of dissolved air, and is therefore unsuitable for making up developers, and secondly, because tap-water also contains a certain amount of organic matter which decomposes gold chloride, and therefore renders it unsuitable for making up toning baths. When distilled water is not available for making up developers, freshly boiled cold water should be used, as the boiling expels the air, and the keeping qualities as well as the efficiency of the developer are increased.

Chemicals for toning baths such as ammonium sulpho-cyanide are deliquescent; it is a good plan to keep these in bottles fitted with glass stoppers or rubber corks as already recommended. Gold chloride, if made into a solution, should be kept in the dark, or in a dark brown or blue bottle.

The fixing bath may be merely hypo and water, as it must be for P.O.P., or it may be made acid in character for plates and development papers, or be left in the ordinary state of alum. Any of the ordinary formulae for these various baths can be compounded if we keep handy a stock of potassium alum (about ¼lb.), chrome alum (¼lb.), sodium bisulphite (¼lb.) and potassium-metabisulphite—already mentioned in connection with the developer. A liberal supply of hypo should always be available; more failures result from insufficient fixing than from insufficient washing.

Reducing over-dense negatives, and intensifying under-developed or over-exposed plates, are operations that will often convert a failure into a success. The more ordinary formulae recommended for these processes involve the use of potassium ferricyanide, mercuric chloride, ammonium chloride, ammonia, sodium sulphide, etc., a couple of ounces of each of which should be added to the dark-room stock, except in the case of mercuric chloride. This substance is a dangerous poison, and it is always advisable to have the mercury solution made up as wanted by a chemist. Half a pint of hydro-chloric acid should be kept for cleansing purposes, as a few drops of this will dissolve the rough scum which settles on dishes, measures, etc., from developing solutions and fixing baths, which no amount of washing with plain water will remove. The least trace of acid will seriously interfere with developing or toning, so that after it has been used for cleansing purposes the dishes or measures should be several times rinsed with ordinary water.

Most amateurs like to try new formulae from time to time, which embody new chemicals, and the dark-room stock gradually increases. A few 4-oz. or 8-oz. wide-mouth stoppered bottles should be kept handy, as so many chemicals are supplied in paper packets; these should be transferred to a clean, dry bottle, and clearly labelled.

Use glass-stoppered bottles for acids, rubber corks for bottles containing ammonia or alkalies in solution, and don’t use tins.

Enlarging by Daylight and Artificial Light

Thanks to the introduction of bromide paper into the photographic world, enlarging is to-day one of the most delightful branches of the art, and so simple, comparatively speaking, that it is quite possible for anyone with ordinary experience in the making of contact prints on developing paper, to essay the making of enlargements, thereby opening out vast possibilities of pleasure and usefulness as is usually undreamt of when it is first attempted. Very soon it is realized that the opportunity is afforded of placing choice specimens on the walls of one's home, exhibition work may be indulged in, whilst for commercial and press work it is a necessity.

In its simplest form, an enlargement is made direct on any of the four grades or surfaces of Imperial Bromide paper, which give prints that are perfect in gradation and richness of image. For any size where detail is desired, the Glossy, Semi-Matt and Matt are just the thing, but where a broader effect is desired, the Rough is simply splendid, combining the marvellous tones and gradation only possible in a good photograph, with a surface so essential to a pencil or water-colour drawing. All tone well, the usual formula for Sepia producing rich prints that are absolutely permanent.

Little Red Riding Hood.

Taken on Imperial Non-Filter Plate. By A. Wood.

To achieve the best results in enlarging, the type of negative that is most suitable should be borne in mind when the plate is developed, as like most photographic processes, this one calls for a negative embodying certain qualities. It should be of good gradation, and not too contrasty, so that correct tone values can be rendered in the high-lights without the shadows becoming unduly heavy. The pyro-stained negative so beloved by some workers is very unsuitable; because of the yellowed image making it difficult for the light to penetrate its tones. The negative from which a good P.O.P. print can be made is just right for the purpose. Where daylight is employed the negative can be much stronger than when the average artificial light is the illuminant. Daylight has the useful quality of being able to penetrate the heavier densities of a negative in a manner that is impossible with the oil-lamp, incandescent gas, or 60 to 80 watt electric lamp.
Both daylight and artificial light being suitable the method adopted may be selected according to the convenience of the photographer. With daylight a very simple fixed-focus apparatus, costing but a very moderate sum, may be used with success. If it is a little more elaborate, with bellows fixed on a board, and a rack and pinion, or other method of focussing the image on ground glass, all the better, as the whole or a part only of the negative may then be enlarged as desired. If a dark slide to hold the bromide paper be included, it is a convenience and saves taking the whole apparatus into the darkroom.

A simple form of lens is all that is necessary for the enlarging process, but it is often worth while to make arrangements to use the lens in one’s camera instead, especially if it is an anastigmat.

**Focussing the Image in Daylight Enlarging**

Place the negative in the carrier, glass side outwards, then, with the lens at full aperture, the focussing cloth is used, in the usual manner whilst the degree of enlargement decided on is arranged as sharp as possible on the ground glass. If a waste negative, on the film side of which fine lines have been cut with a sharp knife in horizontal and vertical directions, be now placed in the carrier, the sharpest possible focus can be obtained. Replace the negative to be enlarged in the carrier and all is ready for the exposure after the insertion of the dark slide holding the bromide paper. In the dark-room, place a trial strip of paper, or better still, a full sheet, in the dark slide, sensitive side towards the lens. If a strip is used, it should be arranged that both high-light and shadow parts of the negative are exposed on it. An uninterrupted view of the sky should be selected for the position of the enlarger, and as a diffused lighting is necessary, work should be done in the shade in preference to sunshine.

With the aid of the Imperial Exposure Meter, perfect enlargements are obtained in the easiest possible manner if a little system be adopted. An important feature of daylight enlarging is to know the actinic value of the light, and for this the handy little meter is simply invaluable. Previous to exposing the bromide paper, the time it takes to colour the meter paper to the standard tint should be noted.

The exposure will naturally vary according to the density of the negative, but as a rough guide with an average negative free from stain, lens at f/16, diffused lighting, exposures of 7½, 15, 30 and 60 seconds might be given in the following manner. First the whole of the paper is exposed for 7½ seconds, then a quarter of the negative is covered with a piece of card and another 7½ seconds given. Another quarter of the negative is covered and 15 seconds given, after which the last quarter is exposed for 30 seconds longer. On development it is not unlikely that one of these exposures will be sufficiently near to enable the correct exposure to be estimated, when a full sheet may be exposed right away. It is wise to make a note at the time of the exposure, lens stop, meter reading and size of enlargement, then if at any future time another print is required the same size, the information will be useful.

**Developing the Print**

The treatment of the enlargement is no different from the manipulation of a contact print, excepting that it may be advisable to flood the paper with clean water for a few seconds previous to development. This eliminates the possibility of airbells, but only whole plates and larger sizes need be so treated.

An excellent developer is the well-known Imperial Single-Solution which, within reason, keeps indefinitely. Sufficient should be used to comfortably flood the paper, and it is advisable to keep it on the move during the immersion of the print. It is not good policy to develop more than about three prints in one lot of solution, or a couple if it is intended to tone them afterwards, because during development the solution absorbs certain products from the paper, which causes the image in later prints to be less vigorous. They may apparently be a good colour, but when toning is competed they sometimes appear muddy and yellowish instead of the rich sepia colour so characteristic of Imperial Bromide Paper. Any developer usually employed for Bromide and Gaslight work is suitable for Imperial papers, but the most popular is the one recommended or the Amidol formula. The only advantage to the latter is that it should not be kept longer than three days after being made up. For the proper rendering of high-lights and shadow detail, development should take about 2½ minutes, and the result will be a rich black print with a good scale of gradation towards the high-lights, and incidentally the best possible for toning purposes. After development it is rinsed in water previous to being placed for 10 minutes in the usual Hypo bath for fixation, at the end of which time it should be washed in running water for an hour, or about a dozen changes.

When developing bromide prints a yellow light is quite suitable, and is infinitely more restful to the eyes than the ruby, besides which it is much easier to judge the strength of the print by its use.

Many negatives are quite suitable for enlarging on Imperial Gaslight Paper, following the same procedure. It is much slower than the bromide paper. The results are superb, engraving blacks being the rule, with pearly greys and high-lights of proper intensity.

**Enlarging by Artificial Light.**

Enlarging by artificial light alters some of the conditions that obtain when daylight is the illuminant. If, for instance, an oil lamp is the source of light, the negative is all the better for being on the thin side, provided good gradation and a proper scale of tones are present. When the illuminant is more powerful the negative can be proportionately stronger. If the amateur has electric light installed in his house, nothing could be better for the purpose, as then the lantern body does not become unduly hot, in fact the light can be used for hours without any ill effects on the condenser. It is a convenience that work can be proceeded with as soon as the light is switched on. Moreover by getting a lamp dipped in acid twice or thrice there is no need of a diffusing screen between the light and the condenser.

Miss Muffett. Taken on Imperial Plate. By F. C. Davis
When incandescent gas is in use, it is better not to have the light full on at first, but to turn it up gradually. This avoids damage to the condenser through a too sudden change from a cold lantern to a hot one.

Other methods of illumination of the negative when enlarging by artificial light are possible without the use of the condenser. One such is the curved reflector type in which an incandescent gas mantle is fitted at each side of a curved sheet of metal which, painted white, reflects the light from the lamps on to the negative in an even manner. A thin negative is the most suitable in this type of apparatus to keep the exposures from being unduly long. It will be seen that this method of diffusing the light can be utilized on a daylight enlarger if necessary.

An easel or other support, on which the bromide paper is pinned, is also required. It is much better to cover the front with dark or black paper instead of the more common practice of using white. For focussing purposes a piece of white paper is pinned on the easel. In practice, the negative is put into the carrier, film side towards the lens, and using the largest stop, the enlarger front is racked or drawn out until the picture is the size intended when focussed on the easel. The nearer the lens to the condenser the greater the enlargement, and the further away the smaller. Withdrawing the negative carrier from the lantern, the position of the light must now be so adjusted that the easel is evenly illuminated. This is best secured by watching the edges of the circle of illumination. Sharpest focus can best be secured by the use of the negative on which fine lines have been cut in the film as previously described. If the definition is not as good as it ought to be, some stopping down of the lens is necessary, but whatever the size of the stop this must be the same for both the test exposure and the print itself. It is naturally difficult to suggest what exposure may be necessary for a given negative but as a rough guide, using a 60-watt electric lamp, from quarter to whole-plate, using a negative of average density, about thirty seconds at f/8 on Imperial Bromide Paper will be about correct, but it is always best to get the correct exposure by using a trial strip. A cap of yellow or orange glass is put on the lens whilst the paper is being pinned on the easel.

**A Brief "Plate" Encyclopedia**

**Useful Details of the Imperial Manufactures**

There are thirteen varieties of Imperial Plates, each with the Imperial characteristics as below, but differing in speed and special adaptability for the various kinds of work for which they are intended. The Imperial Characteristics are: (1) Freedom from fog; (2) Uniformity of quality; (3) Ease of working; (4) Detail; Density; Gradation; (5) Beauty of Technique. These qualities have earned for the plates a world-wide and enduring reputation, and a sale never equalled before by any British make. The varieties are:

**"FLASHLIGHT"**—As the name implies, these plates are of exceptionally high speed, registering 400 by the Hurter & Driffield System in conjunction with our "Standard" developer, which is especially suitable for these plates. Ample density can easily be obtained. Their high sensitiveness calls for proportionate care in the choice of a safe light for the dark-room. The somewhat rapid appearance of the image in development sometimes tempts the beginner to stop development too soon. These plates are especially valuable for hand-camera work, interiors, portraits in ordinary rooms, or in the studio in dull weather, animal studies, and generally wherever the time of exposure is necessarily brief or the light poor. The fastest efficient plate ever made.

**"SPECIAL SENSITIVE"**—H & D 250 to 275: These plates are particularly suitable for portrait photography and focal plane work on account of their remarkable speed, which is sufficiently high to permit of the most rapid exposure. They yield fine, clean negatives, with ample gradation and density. The Special Sensitive plate is the most popular professional plate in the world. Strongly recommended for amateur portraiture.

**"SPECIAL RAPID"**—These are in many respects similar to the "Flashlight." Although their speed number (200 to 225 H & D) is not quite so high, yet it is quite high enough for most practical purposes, except in very dull light, for dark interiors, very rapidly moving objects, and so on. They allow of great latitude, and yield negatives with long range of gradation, free from fog, and with a remarkably fine grain. This plate is the best ever made for amateur photographers, probably the most popular plate ever produced.

**"ORTHOCHROME"**—These plates are specially manufactured to yield negatives giving a truer rendering in black and white of the relative colour-values of blues, greens and yellows. (1) Orthochrome Special Sensitive—a very fast plate, H & D 275. It is the fastest Ortho plate on the market, (2) Orthochrome Special Rapid—the ideal plate for those who wish a colour-corrected plate of the highest quality and of fairly high speed (H & D 200).

**"ORTHOCHROME N.F."**—These are the only Non-Filter plates in the world; they will give, without a filter, results equal to those obtained on the usual Orthochrome plate with a four-times filter. Their speed (200 H & D) is high enough to make them equally suitable for hand or stand-camera use.

**"SOVEREIGN"**—These plates bear a strong resemblance to the "Special Rapid," the chief difference being that of speed. Their average speed number is 150 to 175 H & D. For landscape work with the stand camera these plates are particularly well suited. The latitude of exposure they possess is a property of especial value to the outdoor worker who has to deal with a wide variety of exposures. A valuable plate for beginners.

**"ORDINARY"**—The special qualities of this brand are moderate speed (averaging about 80 to 100 H & D), latitude in exposure, cleanliness and freedom from fog, fine grain and abundant density. This is par excellence the most suitable brand for the beginner and occasional worker,—i.e., the busy man who can only snatch a holiday in summer-time. Provided that the plate has been sufficiently exposed, the beginner will have a minimum of trouble in securing satisfactory results with this brand.
"FINE GRAIN ORDINARY"—Has a specially fine grain, and is full as fast as many "Ordinary" plates of other brands, being about 40 to 50 H & D. Eminently suitable for regular landscape work with a developer which contains half the usual quantity of No. 1. The fineness of grain is just the quality that is wanted for negatives from which lantern slides or enlargements are to be made. Valuable for copying, architecture, etc.

"LANDSCAPE"—These plates are again of a lower speed, usually about 30 to 40 H & D. They give clear negatives of considerable contrast, and are suitable for outdoor work — landscapes, architecture, etc.—where a time exposure can safely be given. For making negatives for reproduction work they are particularly well suited, having a remarkably fine grain.

"PROCESS"—As the name indicates, these plates are specially adapted and designed for use in connection with process work, or for copying drawings, maps, plans and engravings. They are also well suited for making positives or transparencies from negatives through the camera. They possess a fine grain, are free from fog, and give a clean, bright, sparkling result, with ample density. Their H & D speed is 20 to 25. The best plate for Copying.

"LANTERN" (Special)—These plates have a fine grain, and give clean and bright results, free from fog, and with abundant detail in the shadows. They can be used either for contact printing or with a lens for enlargements. They are useful not only for lantern-slide making, but in larger sizes for making transparencies for the window and other similar decorative purposes. They yield black or slightly warm-black tones by normal development. H & D speed about 5. No lantern plate yields better results.

The Imperial Printing Papers of Quality.

IMPERIAL P.O.P. prints quickly, gives splendid gradation, tones easily without double tones, and yields a wide range of colours. Toning does not take more than five to ten minutes, depending on the temperature of the bath and the colour required. In four tints, Mauve, Deep Mauve, White and Rose, and Mauve and Rose are Post-cards in Mauve and Deep Mauve.

IMPERIAL SELF-TONING PAPER (Gelatino-chloride). The gold necessary for toning this paper is embodied during manufacture. The operations consist of fixing in Hypo and washing only. The paper will give very beautiful results, and any desired colour from yellow to purple-black may be obtained by varying the treatment slightly. Made in Glossy and Matt. Post-cards in Glossy and Matt.

IMPERIAL "GASLIGHT" PAPER is made in three varieties matt, semi-matt and glossy. The speed of this paper enables printing and development to be done in an ordinary room with the usual artificial light, thus abolishing the dark-room in the manipulation of this paper. Post-cards in Glossy, Semi-matt and Matt.

IMPERIAL BROMIDE—This is made in four grades or surfaces—viz. rough, matt, semi-matt and glossy. It is of such sensitiveness that it can be used for enlarging or contact-printing either by day or artificial light—e.g. gas, lamp or magnesium. Post-cards in Matt, Semi-matt and Glossy.

Photographers’ Aids

IMPERIAL LIGHT FILTERS—Specially adjusted to suit Imperial Orthochrome Plates. Made in six sizes, three densities, and in two qualities. Details free.

IMPERIAL EXPOSURE METER.—For measuring the intensity of the light and indicating the correct exposure for all lens-apertures simultaneously. The simplest, cheapest and best Meter made. "Two kinds—

No. 1 for bright light; 1/6d each.
No. 2 for dull light and interiors.

The two meters bound together in leather, 3/6d. Called the "Duplex" Meter.

IMPERIAL EXPOSURE RECKONER—Does not actually measure the light, but gives the time for contact printing either by day or artificial light—e.g., gas, lamp or magnesium. The Reckoner and the No. 1 Meter, bound together in leather, 3/6d. Called the "Combined Meter Reckoner." No more efficient exposure outfit made. 24