Vol. 6. No. 5. May 1900.

# Journal of the Amateur Photographic Society of Madras.



CONTENTS.



## *EDITORIAL NOTES.*

IT is with much pleasure that we publish elsewhere a letter from Sri Gajapathy Narayana Dev, Second Prince of Parlakimedi, offering the use of his well-fitted dark-room to the members of our Society. We are sure members who visit the environs of Parlakimedi will only be too glad to be able to utilise the Prince's dark-room.

A NEW feature of our current number is the illustrated article on the Gadabas by the Kumar Raja of Bobbili. We are very glad to publish it, and sincerely wish that our members will try to make such illustrated articles a prominent feature of our journal. The Kumar Raja takes a keen interest in photography, and the illustrations speak sufficiently well for the skill with which he uses the camera. It is especially worthy of praise that he has brought his photographic knowledge to bear upon matters of anthropological interest,—a subject often neglected by the amateur.

VIZAGAPATAM is one of those places where the highly interesting aboriginal tribes of India have been preserved to the present day. Among the different tribes that are found in this part of the country, must be mentioned the Khonds, the Sauras, the Nangas—a race of men who go almost naked and shave their heads, it is said, for fear of being eaten by tigers—and the Gadabas. Of these, the Khonds are better known than the others ; and we are glad to get for our journal the above interesting account of the Gadabas. In connection with this article, we may call the attention of our members to an

illustrated account of some wild Indian tribes which appeared in the March number of *Knowledge*. The account is abstracted from Dr. Thurston's Researches.

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THE longstanding controversy as to whether Fox Talbot or Daguerre was the first to publish his researches on photography seems to be put an end to by the Editors of the *Photogram*. In Our Home Letter, published in our last number, it was stated that Daguerre first published his Researches on January 7th, 1839. The Editors of the *Photogram* have, after careful investigation, come to the conclusion that this is an error. It appears that Fox Talbot's process was first described on February 27th, 1839, while Daguerre's was not published till August 19th, 1839. The question of priority is thus settled. Though not of much importance from the point of view of photography, the matter adds to our national scientific glory. We are thankful to the Editors of the *Photogram* for having called our attention to the above.

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IN an article on the "Photography of Clouds," which appeared in the April number of *Knowledge*, Sig. Antoniadi gives some very useful practical notes. The first point is to have the camera and plates always ready, so as not to have to run about for anything when the photographic moment arrives. Any camera will do. The writer advises a wide angle lens and a Thornton-Pickard shutter with a maximum speed of 1/80 second. A cell ¼ inch thick and containing a solution of bichromate of potash, to which a few drops of chlorhydric acid are added, makes a good yellow screen which will quench the blue of the sky. The time of exposure depends upon so many circumstances that it is impossible to give any hard and fast rule. Practice is the best guide. The article is to be continued in the next number. We would recommend those who are interested in the subject to consult the illustrations which accompany the article.

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TO the lay mind, the idea of colour photography (though incorrectly understood) is full of fascination. Researches by eminent men of science steadily add to our knowledge. The interest in colour photography increases day by day, and it is nothing new to see advertisements of three colour cameras. There can be no doubt that amateurs will, ere long, take to this pleasant hobby. The articles on Colour Photography which appear in our contemporaries are too many for reproduction in our journal. But there is one series on "Practical Colour-work for Amateurs," which will prove to be of great interest and help to our readers, but which we have to put off, for want of space.

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THE last number of the *Camera Club Journal* to hand contains an account of a rather extraordinary luncheon given in the Club rooms. Kangaroos' tail a l' Australien, saddle of reindeer, omelette made from the egg of an emu (crocodiles' eggs were also available) were some of the courses. The guests are stated to have stood the lunch remarkably well. The egg shell was subsequently mounted in silver and preserved as a souvenir.

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WE have been waiting for Our Home Letter, but have not received it up to the time of going to press.

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### *Crrespondence.*

TO THE EDITOR.

SIR,—All readers of your journal may not be aware that in this part of the country there is woodland scenery which might well tax the powers of a Scott to paint adequately in words. But any knight of the Camera, well-equipped, can easily transfer to paper any picture from Nature's Art Gallery. Many a sight to be seen here is worthy of being photographed and carried away as a souvenir. If this slight and inadequate description is likely to tempt any members of our Society to these parts, I shall be glad to welcome them. I may add that I have a dark-room fitted with all modern conveniences, such as gas, water, and mechanical washer, and well-stocked with chemicals. Sights and scenery worth photographing, a well-fitted dark-room at the free disposal of visitors, a fellow member ready to welcome them—these things I guarantee to any of our members who may choose to visit these parts on photography bent.

I am,

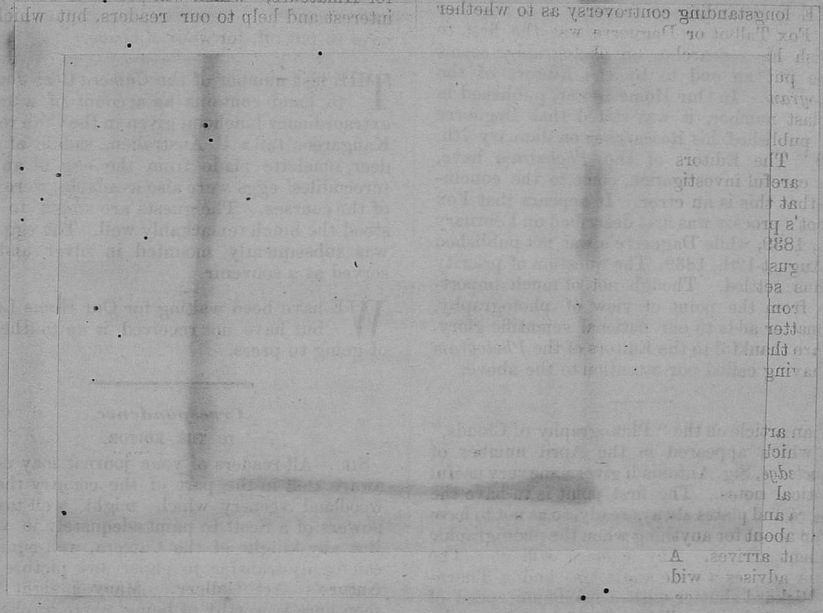
Yours faithfully,

S. P. NARAYAN DEV.

PALACE,
PARLAKIMEDI,
23*rd April* 1900.

## A CURIOUS INDIAN TRIBE.

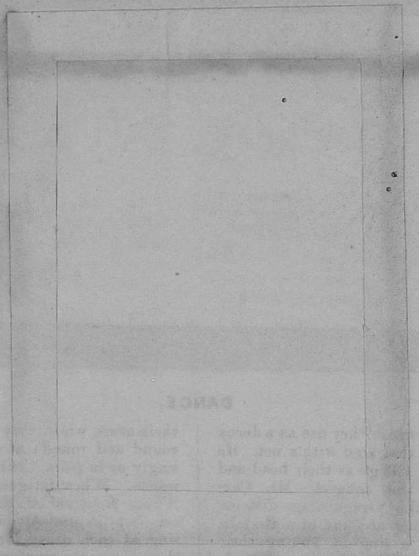
To the ethnological student India is indeed a happy hunting ground. Every hill and jungle tract has its own peculiar tribe, peculiar alike in appearance, in manner of living, and in costume. Not the least interesting among them are the "Gadabas" of the Vizagapatam district, in the Madras Presidency.



VILLAGE GROUP.

They are a tiny, but sturdy copper coloured people found in considerable numbers all along the hill tracts in the western part of this district. The most striking peculiarity about them is the unique and picturesque dress of their women which can be best seen in the picture "Attired in their Best" (frontispiece). Their dresses, or rather the cloths which they wrap round their body, are entirely of their own manufacture, and are nowhere to be procured for money; even their men are quite ignorant of how they are made. These remarkable garments are manufactured from the fibre of many shrubs, the chief of which is "*Asclepias gigantea.*" The women go out into the neighbouring jungles, and bring home bundles of the material on their heads. It is all carefully dried, and when the useless pieces have been removed, it is dyed, generally in two colours, dark blue, and a reddish brown. It is then woven into a long narrow piece of cloth. The edges are always white, a blue stripe coming next, while the middle portion is a reddish brown, with narrow lines of white or blue at regular intervals. Not less marvellous are their immense ear-rings. These are made of long pieces of brass wire wound round and round into an ear-circle of from four to five inches in diameter, and they hang down from a huge hole in the lobe of the ear. But perhaps their most striking ornament is an enormous kind of bustle which every Gadaba woman wears outside her cloth. It is made of a mass of black jungle twigs tightly bound together, and must render sitting down a most inconvenient operation. It can be seen best in the picture entitled "Going to the Market."

The head-dress consists of a row of cowries, and together with it several rows of beads of different sizes and colours which encircle the head just above the forehead. From the cowries small strings of very

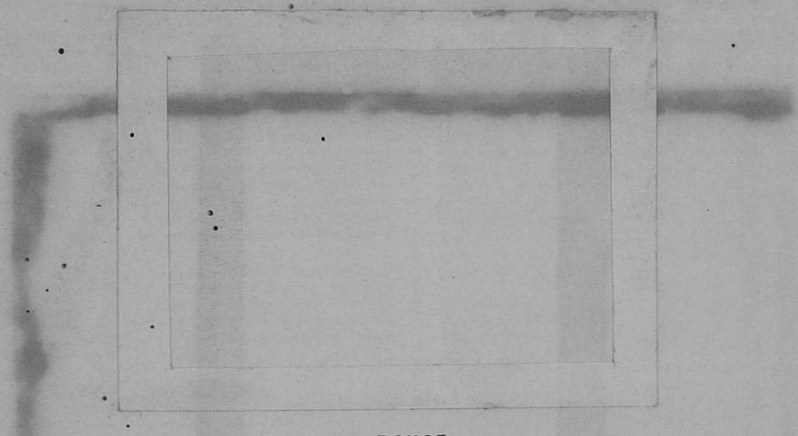


GOING TO THE MARKET.

tiny beads hang down about two and a half inches over the face. The necklaces are also made of beads. Occasionally a coin is to be seen in the middle of them, hanging down like a pendant. Their bracelets and rings are either made of brass or copper. Some also wear silver rings. As may be seen in the picture "Attired in their Best," toe-rings and rarely an anklet or two (generally of brass and very occasionally of silver) are considered fashionable ornaments. The Gadaba men account for the dress of their women in the following way :—when Rama, the hero of the Ramayana, during his banishment, was wandering through the forests of "Dandakaranyam," his wife Seeta also accompanied her beloved lord in spite of his entreaties to the contrary. It was one of the cruel terms of his step-mother Kaika (who was the cause of the whole disaster,) that Rama should wear only cloths that were made of fibre from the jungle before leaving the capital, probably with the ostensible reason that he should don the orthodox dress, but with the real intention of making him as uncomfortable as possible. According to the Hindu religion a virtuous wife must share either joy or sorrow with her lord. Consequently Seeta followed the example of her husband, and wore the dress. Then they left the capital amidst the loud lamentation of the citizens. During their wanderings they met some Gadaba women who mocked and laughed at Seeta. Whereupon she cursed them and condemned them to wear no other dress but the cloth made of such fibre.

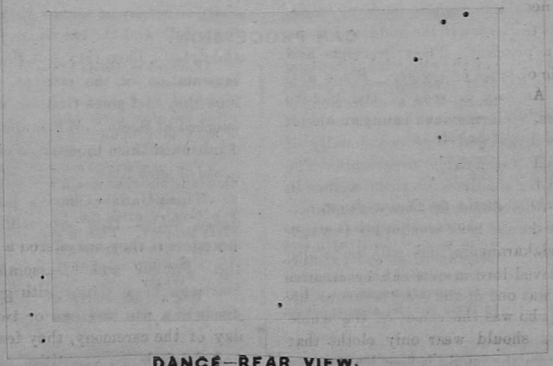
These Gadabas have a peculiar kind of national dance, which they are willing to perform before strangers if they are offered a small present. During the 'Pongal' and 'Dusserah' and also during a marriage they dance with great enthusiasm to the music of a fife and one or two drums. On the last day of the ceremony, they feast with great rejoicing, and drink large quantities of toddy, their choicest food on these occasions being a village pig. An idea of their dance can be formed from the accompanying illustrations.

It will be seen that men and women do not dance together, but in separate groups, while the village headman stands apart, with a long stick and a cage in his hand. Some of the men carry such cages



DANCE.

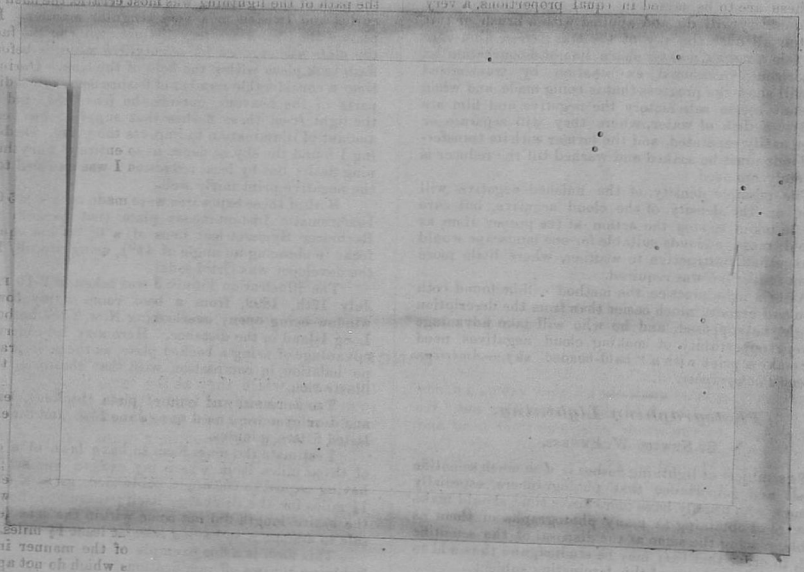
which contain a tame quail, which they use as a decoy when catching wild birds of that kind with a net. He is looked upon by the whole village as their head and leader, and they all follow his counsel. Mr. Carmichael, in his Manual of the Vizagapatam district, gives the following interesting account of a Gadaba dance. "The woman form a ring by joining their hands all round, and, with a long hop, spring towards the centre, and then hop back to the full extent of their arms, while they at the same time keep circling round and round; at other times the women dance singly or in pairs, their hands resting on each other's waists. When fatigued they cease dancing and sing. A man steps out of the crowd and sings a verse or two *impromptu*. One of the women rejoins, and they sing at each other for a short time. The point of these songs appeared to consist in giving the sharpest rejoinder to each other; the woman reflects upon the



DANCE—REAR VIEW.

man's ungainly appearance, and want of skill as a cultivator, or huntsman, and the man retorts by reproaching her with her ugliness, and slatternly habits."

The chief occupations of the Gadabas are hunting, bird-catching, and firewood-cutting. But hunting is gradually decreasing as many of the forests are now preserved, and shooting without a license is forbidden. The men now occupy themselves in felling trees, in catching birds and hares, and tracking big game for their masters. Like many of the semi-wild tribes of India the Gadabas have their own language, differing



CAR PROCESSION.

entirely from the language of the other inhabitants of the district. They can neither read nor write, indeed their language is little more than a collection of sounds (and very ugly inharmonious sounds too). It cannot even boast of an alphabet.

## EXTRACTS.

### *Transferring Clouds to Negatives.*

As white paper skies in photographic prints are no longer tolerated, and the cases in which both "earth and air" can be successfully photographed at one exposure are few and far between, recourse is had by all good picture makers to printing from separate negatives. But printing in, although comparatively simple, requires both care and attention, and where there are many prints to be made from one negative, considerable time as well. This has led to a desire for having the clouds transferred to the negative, so that although they cannot be photographed by one exposure they may be obtained by one printing.

Several methods have been in use for some time, but that proposed by Mr. P. Rowe, in a recent number of *The Practical Photographer*, is at once the simplest, and we think the most successful. It is based on the permeability of the photographic film and the action of a reducing agent, Farmer's solution being recommended.

The negative most suitable for the transferring of clouds is one that would give a white or nearly white sky to the print, and when a negative with suitable clouds has been secured, the first step is to strip it from the glass support. This is easily accomplished by soaking it for ten minutes or longer in the following solution ;

| | | |
|---|---|---|
| Sodium sulphite | .. | ... 2 ounces |
| Water | ... ... | ... 10 ounces |

When sufficiently soaked it will begin to loosen at the edges, and, beginning at one corner, it should be loosened all round the edges and gradually wrought towards the centre till entirely free from the glass. It is then washed in several changes of water, the landscape negative allowed to soak for a short time in the last, and both drawn out together, film to film, and squeegeed till they adhere, care being taken that there are no air bells.

While the washing and soaking is going on, the following solutions may be made, or they may be kept in quantity as stock solutions, but they must not be mixed until just before use:

| | | |
|---|---|---|
| 1. | Potasium ferricyanide | ... 15 grains |
| | Water ... ... | ... 1 ounce |
| 2. | Sodium hyposulphite | ... 50 grains |
| | Water ... ... | ... 1 ounce |

These are to be mixed in equal proportions, a very small quantity will do, and applied with a brush or tuft of cotton all over the sky of the transferred film, care being taken not to make a sharp line of demarkation at the horizon. Occasional examination by transmitted light will show the progress that is being made, and when the result seems satisfactory the negative and film are placed in a dish of water, where they will separate or may be easily separated, and the former with its transferred clouds must be soaked and washed till the reducer is completely removed.

The possible density of the finished negative will depend on the density of the cloud negative, but care must be taken to stop the action at the proper time, as the bold, massive clouds suitable for one landscape would be altogether destructive to another, where little more than an indication was required.

After a little practice, the method will be found both simple and certain, much easier than from the description it might be supposed, and he who will take advantage of every opportunity of making cloud negatives need never make a print with a "bald-headed" sky.—*American Amateur Photographer.*

## *Photographing Lightning.*

By Newton W. Emmens.

The subject of lightning flashes is of so much scientific interest and importance that photographers, especially amateurs, who usually have more spare time, should make a practice of obtaining as many photographs of them as possible, placing the same at the disposal of the scientific world, in order that they may be studied, and thus add to our store of knowledge of this fascinating subject.

The actual photographing of the lightning flash is a comparatively easy matter. All that is necessary being to watch during a thunder storm and notice in what part of the sky a majority of flashes occur, and then to set up the camera in some position where it will be protected from the rain, but at the same time will command as good a view of the heavens as possible; these conditions being, for example, attainable by selecting an upstairs window in a city or a porch in the country. The camera should then be focussed on some distant object, such as a street lamp or lighted window; or, if the camera have a focussing scale, the pointer should be set to 100 feet and the lens stopped down to F/11 or F/16, according to the speed of the plate used. A plate-holder is next inserted, the slide withdrawn, the shutter opened or the cap removed from the lens and the plate is allowed to remain exposed till a good flash occurs in that part of the sky embraced within the field of the lens. The slide is then replaced in the holder and the exposed plate removed; after which a fresh holder and plate are inserted and another flash waited for, and so on.

Two of the illustrations accompanying this note were taken on June 20th, 1899, between the hours of 8 and 9 P. M., from the front porch of my home at 20 Central Avenue, New Brighton, Staten Island.

The two flashes seen in the illustration, Figure 1, were secured within five minutes of exposing the plate. The flash on the right of the picture is of great interest, owing to the peculiar manner in which the flash threw off tributary flashes and owing also to the great width of the main flash, the length of which was roughly five-eighths of a mile.

In the illustration, Figure 2, it will be noticed that the path of the lightning was most erratic, the flash having curled and twisted in a very singular manner. In this picture the houses are very distinct owing to the fact that the plate was exposed for twenty-five minutes before any flash took place within the field of the lens. During that time a considerable number of flashes occurred in different parts of the heavens, outside the lens-field; and it was the light from these flashes that supplied the necessary amount of illumination to impress the plate. On developing I found the sky so dense as to entirely bury the lightning flash; but by local reduction I was enabled to make the negative print fairly well.

Both of these exposures were made on a 4 × 5 Cramer Isochromatic Instantaneous plate (not backed) with a Rochester Symmetrical Lens of a 6¼ inches equivalent focus (embracing an angle of 41°), using stop F/16; and the developer was Ortol-soda.

The illustration Figure 3 was taken at 8-10 P. M., on July 12th, 1899, from a back room of my home (the window being open) overlooking New York harbor, with Long Island in the distance. Here may be observed the advantage of using a backed plate, as there is practically no halation in comparison with that shown in the first illustration.

The same size and kind of plate (backed), lens, stop and developer were used as on June 20th, and the exposure lasted fifteen minutes.

I estimate the main flash to have been at a distance of three miles from where my camera was set; which, having regard to the angle subtended, gives a length of 1⅜ miles for the discharge itself; inasmuch, however, as the entire length did not come within the lens field it is safe to assume it as having been at least 1½ miles.

This flash is a fine example of the manner in which lightning throws off ramifications which do not appear to reach the earth.

(Photographs of lightning flashes and data concerning these phenomena are of much scientific value, and we shall be glad to receive further pictures and notes from readers.—The Editor. —*The Photographic Times.*

## *Improved Ozotype.*

By Mr. Thomas Manly.

Since I delivered my lecture at the Royal Photographic Society, in March last, I find the subject of Ozotype has attracted considerable attention.

The faculty of producing a visible image which renders gelatine insoluble when brought in contact with it, is the basis of Ozotype printing. Hitherto a film of pigmented gelatine supported upon paper, and in which a bichromate salt is incorporated, has been used as a light-sensitive surface. When such a surface is exposed under a negative, the dark colour of the pigment prevents any image from being seen. There is a certain amount of discoloration in the sensitive salt, but it is entirely obscured by the pigment, and an actinometer is therefore necessary to judge the time of exposure. When such a film is exposed under a screen where light is allowed to pass in varying degree, the gelatine becomes insoluble

in proportion, and a picture composed of insoluble gelatine is produced in a layer of soluble gelatine. Moreover, the whole surface of the film, to an exceedingly small depth, becomes insoluble. So, you see, we have an insoluble gelatine picture embedded in soluble gelatine, on the top of which is an exceedingly thin layer of insoluble gelatine.

In ordinary carbon printing this fine insoluble film is very important, as it holds the picture together in the operation of transferring it to the final support. Let us see what takes place in this operation of transferring. The very thin layer of insoluble gelatine which was on the top of the carbon tissue is now next the paper, and the varying thicknesses of insoluble gelatine produced by light adhere to this film, which is cemented to the paper by chemical contact, so that the soluble gelatine which was underneath when the tissue was exposed is now on the top, and can be washed away in warm water. Such are the principles underlying the ordinary carbon process.

In Ozotype the paper which is intended for the permanent support of the picture is sensitised with a bichromate salt, in conjunction with a manganous salt and certain other substances, and is printed by daylight under a negative, a distinctly visible brown image being produced. When the print is washed it will keep indefinitely. Now, such an image, if brought in contact with gelatine which has previously absorbed a small quantity of a solution containing acetic acid and reducing agent, is capable of rendering the gelatine insoluble in proportion to the amount of light-product on the print.

Now, I want you to clearly understand the great difference between the principles involved in these two methods. In the one case the picture is printed on the mass of pigmented gelatine, and in the other the image is formed upon the paper, and the tissue is brought in contact with it. In the case of ordinary carbon printing the picture is produced in a bed of gelatine by the direct action of light, and you know how delicate the details are when you print in a gelatine medium. In Ozotype the action, comparatively speaking, is at a distance, and consequently there is a certain softness in the outline, and a compensating improvement in the half-tones, and it is this fact which constitutes the great difference between pictures made by Ozotype and by the older method. The softness of the outline is a great advantage in artistic work, and I ventur to think that Ozotype will give an impetus to really artistic photography, which the public will welcome as a change from the chemically produced pictures which have hitherto been placed before it. And when you consider that an insoluble gelatine substratum is not a necessity, you will see that we get one step nearer to monochrome hand-work. You can hang your specimens on your walls, and your prints will not require a magnifying glass to see what they are. You can enlarge your "snap-shots," and all their artistic merit will come out in the process. Retouching is rarely necessary in the case of heads of moderate size.

Having described the main point of difference between the principles involved and the results obtained by the two processes, I will now indicate some of the advantages of the working of Ozotype over the older method.

You can coat any suitable paper with a sensitising solution which will keep in the bottle almost indefinitely. The image distinctly is visible, and the progress of the printing can be watched. When washed in water the print will keep indefinitely. You can lay in a stock of insensitive carbon tissue without fear of it spoiling. You can coat your paper one evening by full gaslight, and print upon it the next day, or at any time within a month or six weeks if the paper is chemically pure. When you have washed your print, you can proceed at once to pigment it, or you can leave that operation to be performed at any future time, and it does not seem to matter how long the print with its adherent tissue is kept before development. In ordinary carbon printing the operations should be carried through without intermission, or chemical complications will arise. There is no dipping one's fingers in a warm solution of a bichromate salt, and owing to the tissue being in a soluble condition when used the squeegeeing is a very easy operation. Blisters are never produced, imprisoned air-bells merely form little white spots which can easily be painted out, and no safe edge is required to prevent any insoluble gelatine from washing up.

When I explained my process in my previous lecture, several of the photographic papers published articles in which the writers endeavoured to show a similarity between Ozotype and an almost forgotten method of carbon printing called Mariotype, merely because in both cases the image was printed on transfer paper and the carbon tissue was laid down upon it. I only knew of the existence of Mariotype about a month before I read my paper, and I was at once convinced that the two processes were based upon entirely different chemical actions. I will not take up your time in fully describing Mariotype, but I will just mention that the action is entirely dependent upon what is called the "continuing action of light." A surface of a bichromate salt is exposed under a negative, and a faint print is produced. Carbon tissue, having been immersed in a weak solution of the same salt, is applied to the exposed surface and allowed to remain in contact for about eight hours without becoming dry. The light reduces the chromic salt to an oxide, which in the presence of the moist chromic salt appears to possess a further reducing power. Now, with regard to Ozotype, I will ask you one question: "Where does the continuing action of light come in?" The source of the continuing action is the bichromate salt, which is entirely removed before the image touches the gelatine. This is only one of the several points of difference, but I think it is sufficient to remove from your minds any idea of a similarity in the conception of the two processes.

I do not claim that the Ozotype process has at present attained absolute perfection. The now well-known methods of printing in silver, platinum, and carbon have been employed for many years by thousands of photographers, and it is due to constant practice and observation that they have been brought to their present high standard of excellence. In Ozotype only one pair of hands has been at work, and I hope you will bear this in mind in judging the examples which I have brought to show you to-night.

I will now proceed to demonstrate the method of producing pictures in pigmented gelatine by means of the Ozotype process. I will go step by step through my work, commencing with the most important item, which is the paper upon which we wish to print our picture.

*Sensitising.*—Any good paper may be employed if the prints are to be made within a week; but if it is to be kept for a longer period its purity is essential, and the sensitive surface on such a paper will keep for two months or more. The papers I propose to sensitise to-night are Rives' and Michelet's. The sensitising solution,

as I have said, contains a bichromate salt, a mangonous salt, and certain other substances. Arrangements are being made for placing it on the market, and it will probably be commercially obtainable early next year, but in the meantime I shall be pleased to furnish small quantities to Members of the Camera Club who may wish to experiment seriously. To sensitise an imperial sheet of Rives' paper, about two drams of the solution should be poured on the centre of the paper, and then distributed evenly over it by means of a wide brush of a soft hogs-hair. For Michelet's paper about two and a-half drams the sensitising solution will be required, and it must be well worked in with more vigorous brushing than is necessary with Rives' paper. The brush must be washed before being put away.

*Printing.*—The sensitised paper is printed under a negative in the usual way, no safe-edge being necessary, and the image is clearly visible. When the image is sufficiently printed, and all the details are out, the paper is washed in two or three changes of cold water, to remove the unacted-upon sensiting material, and when dry the prints may be kept indefinitely before proceeding with the next stage of the process.

*Acetic Solution.*—Make up the following solution:

| | | |
|---|---|---|
| Glacial Acetic Acid | ... | 40 minims. |
| Hydroquinone ... | ... | 30 grains. |
| Ferrous Sulphate | ... | 1 grain, if necessary. |
| Glycerine ... . ... | ... | 1 dram (or for rough papers, 2 drams). |
| Water ... ... | ... | 40 ounces. |

Let the acetic acid be added to the water before the other ingredients. The sheet of carbon tissue, by means of which the print is to be pigmented, is soaked in this acetic solution for about one minute, at a temperature, for smooth prints, of from 70 to 75 degrees; but for Michelet's or Whatman's paper the temperature, must be increased to from 80 to 85 degrees—almost to the melting point of the gelatine, to ensure the proper adhesion of the print to the tissue. The acetic solution may be modified by increasing or decreasing the quantity of hydroquinone: an increase will produce good pictures from hard negatives, and a decrease tends to produce contrast in prints from soft negatives.

*Squeegeeing.*—When the tissue has been in the acetic solution for about one minute, take the print and plunge it under the surface of the acetic solution, bring it in contact with the tissue, and at once remove both clinging together, and gently squeegee them on a flat surface. Place them between blotting paper, for the purpose of removing surface moisture, and then hang them up to dry. At this stage, also, the prints may be kept for a moderate length of time before proceeding to develop. The tissue should be carefully brushed with a piece of velvet before use, in order to remove any particles of dust from the surface.

In my original paper I explained an experiment in which I had inserted some needles in carbon tissue, and then immersed the whole in acetic acid, and developed the tissue with hot water, when it was found that a ring of insoluble gelatine had been formed at each place where a needle had been inserted. I have applied that principle to the acetic solution for Ozotype printing, and the addition of a very small amount of ferrous sulphate is thus accounted for. My theory was that if a very small quantity of an oxide of iron was thrown down on the paper, the very thin skin of unpigmented gelatine on the surface of the tissue would become insoluble, and that this would tend to the better adhesion of the details to the paper. I find that that theory is correct, and that the addition of a small quantity of ferrous sulphate to the acetic solution has that effect.

*Development.*—The dried squeegeed print and tissue should be soaked in cold water for about a half to three-quarters of an hour before development, which is carried out in exactly the same manner as for ordinary carbon work, the water being at a temperature of from 104 to 107 degrees. The use of an alum bath after development is recommended.

*Green Blue, and Purple Prints.*—The prints in their first stage (*i.e.*, after washing), instead of being pigmented may be treated as follows for the purpose of securing coloured images, but such prints cannot be regarded as permanent, as the aniline colours are more or less fugitive:—A green colour is obtained by immersing the print in a 5 per cent. solution of aniline hydrochloride, strongly acidified with sulphuric acid. Blue prints may be made by treating the original image with a 5 per cent. solution of cupric chloride. Purple images result when green prints, made as above, are immersed in dilute ammonia.—*Journal of the Camera Club.*

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## *Lantern-slide making for beginners.*

By Primrose Hill.

EXPOSING IN THE CAMERA—(*continued.*)

Next, we require a negative-holder. This is of thin wood, and shaped like a lidless shallow box; but out of the bottom is cut a hole just large enough to take the negative, which slides in two small grooved cross pieces. This negative-holder is fixed on to one end of the base-board, as shown at N. Next we cut along the centre of the base-board, a slot to admit the camera screw, so that we can fix the camera to the board at any position. In the figure we show the end of the slot, S, just at the back of the camera, C. One end of the base-board is attached to AA by means of hold and blind cord. These are not shown in the figure, but may easily be imagined. The base-board, BB, rests on AA at this end, and the cords here are tightly tied, so as to prevent the window being broken. The other end of B is supported by a hinged T piece, and rests on the floor. It is convenient to adjust the heights of T so that the operator may be seated saddle-wise across a kitchen chair, so that the chair back is against T, and prevents it being kicked. Unless the camera, C, is of the same size as the negative, N, it must be provided with a rising front. We may now assume that focussing has been done. We now have at hand a couple of light wooden rods, such as are used for the bottoms of blinds. The ends of these rods, RR, rest on the top of the camera and negative-holder. The focussing cloth is thrown over the rods. This shields the lens from any light, except that passing through the negative, N. Exposure is made by slipping the hand under the focussing cloth and uncapping the lens, or what is better still, by shutter and pneumatic ball.

The second form of apparatus is especially convenient where we can have reflected daylight. It can also be used with reflected artificial lights, gas, magnesium, or lamps (for artificial lighting see a subsequent chapter). Any one who can have the use of a room with good top light—such, for instance, as an ordinary conservatory—will find this method particularly suitable. It can, of course, be used out of doors—even in very confined situations—as all we need is a bit of sky light overhead.

First is our base board, AA, perhaps four feet long and eight inches wide, according to size of negative, focus of lens, and so on. Next is the negative-holder. As in last figure, this is a lidless box with a hole in the bottom, carrying the negative in grooves. This is shown as D, and by means of an imaginary hole made in its side we get a glimpse of a corner of the negative, N. Beyond this we have a large sheet of white cardboard, which acts as a reflector. This is held at an angle of forty-five degrees to the horizontal plane by a light wood frame, S. D and R are not fixed to the base-board, but can slide freely to and fro. In this case we will suppose we are using a quarter-plate camera, C, for making slides from a $7\frac{1}{2}$ by 5. Thus, in order to get the optical axis of the lens exactly opposite the centre of the negative we must raise our camera up above the base-board. This we may conveniently do by means of various flat pieces of wood, as at BB. It will be found better to have several pieces of different thicknesses rather than one thick piece, as this enables us to get the lens opposite various parts of the negative, as may be required. For the general arrangement of the holder of the reflecting card the reader may consult the corresponding part of fig. 3. It may here be mentioned, also, that when a strong side light is available and not a top light, all one need do is to turn the reflector on its side. But experience shows that nothing is so good as a good top sky light.

The third form, is very similar to the second in general outline. But it has one point which should be especially noted by users of the hand camera. In this latter form of camera one often gets bits of architecture where the swing back has not been vertical, and consequently the buildings do not appear as truly vertical. Contact printing in this case is out of the question, as the slide would of course repeat the evil of the negative. Hence the third form of apparatus. Here, as before, we have the base-board, M. But in this case our negative holder is simply a flat piece of wood with a hole cut out large enough to show the printing size of the negative. This is held in position either by small turn-buttons or by grooved strips as before. Now this negative-holder differs from the other two forms inasmuch as it is hinged to the base-board. By means of a slotted side bar or strut, S, and a turn-screw at B, the negative-holder can be fixed at any required angle. As before, light is sent through the negative by means of reflecting sheet of white card (not shown), which is held in a suitable position by means of R, the holder. Two small light rods rest their ends on the top of the negative-holder and pass through two metal rings in the top of the front of the camera. As in the first described form, the focussing cloth is thrown over these rods, and so cuts outside light from the lens.

Now, why this hinged negative-holder? The answer is, that by swinging the negative and also the back of the camera containing the lantern plate, we can compensate for the error of not having the back of the hand camera vertical. In short, we can thus restore to a sober and vertical position architecture which is often in this state described as drunken. As in the case two, also in case three, we can use top day (sky) light, or if preferred, some of the various forms of direct or reflected artificial light.

[For the various forms of commercially obtainable apparatus the reader may consult the dealers' catalogues, and also Chapter II. of Hodges' Lantern Slide Manual, published by Hazell, Watson, and Viney, Ltd., 2s.]

Here is a formula and table derived therefrom. These do not seem to have found their way into print before, and therefore may prove useful to those about to construct or buy apparatus of the form just mentioned :—

Supposing, then, $f$ to be the focal length of the lens, and $l$ the long side of the negative. It is required to know the length of base-board, *i. e.*, $d$, distance from negative to lantern plate, which will reduce $l$ to three inches on the slide. The formula is :—

$$d = f\frac{(l+3)^2}{3l}.$$

In words this reads—Add 3 to the length of plate ($l$) square this number, multiply it by focal length of lens ($f$) and divide the result by 3 times' length ($l$) of the plate.

Table showing the length of Base-board for Reducing standard sizes of Negatives to a 3 inch image on Lantern Plate.

| Focus of Lens | Long Side of Plate. 4 | $6\frac{1}{2}$ | $7\frac{1}{2}$ | $8\frac{1}{2}$ | 10 | 12 |
|---|---|---|---|---|---|---|
| 4 | $16\frac{1}{2}$ | $18\frac{1}{2}$ | 20 | $20\frac{1}{2}$ | $22\frac{1}{2}$ | 25 |
| 5 | $20\frac{1}{2}$ | 23 | $25\frac{1}{2}$ | $26\frac{1}{2}$ | 28 | $31\frac{1}{4}$ |
| 6 | $24\frac{1}{2}$ | 29 | $30\frac{1}{2}$ | 32 | 34 | 37 |
| 7 | ... | $32\frac{1}{2}$ | 36 | 37 | $39\frac{1}{2}$ | 44 |
| 8 | ... | ... | 41 | 42 | 45 | 50 |
| 10 | ... | ... | .. | 53 | $56\frac{1}{2}$ | 62 |
| 12 | ... | ... | ... | ... | ... | 75 |
| | $\frac{1}{4}$-plate $4\frac{1}{4}+3\frac{1}{4}$ | $\frac{1}{2}$-plate $6\frac{1}{4}\times4\frac{1}{4}$ | 1-1-plate $7\frac{1}{4}\times5$ | $8\frac{1}{2}\times6\frac{1}{2}$ | $10\times8$ | $12\times10$ |

For example—How long a base-board is needed for making slides from whole-plate negatives with a 7 inch lens?

In the "focus of lens" column find No. 7, and on the top find $8\frac{1}{2}$ inches. Where these columns meet is No. 37. This is the length required.

## X.—STANDARD DEVELOPERS.

So far we have confined our attention to hydroquinone as the developing agent.

(29) For the beginner hydroquinone is one of the best developers for him to start with. But when he has acquired some little experience in the making of slides he will surely ask himself, "Is this the *only* developer?" "*Why* is this recommended?" "Why cannot I use for slide-making the same agent (pyro, metol, ortol, etc., etc.) that I use for negative-making or bromide-print developing?" Let us answer these questions in order. Hydroquinone is not the only lantern-slide developer by any means. It is a good one to begin with, because it is easy to mix, keeps fairly well, gives a good black-and-white slide, and does not tend to fog. Anything that will develop a negative or bromide print will develop an ordinary slide.

(30) In this chapter we set before the reader a large number of formulæ which have been collected from various sources, but chiefly from well-known lantern-slide makers, either by personal favour or in their lectures, etc. Our object in setting down so many formulæ is not that the reader should be invited to experimentally wade through the series, but that he may select one (or perhaps two) which will conveniently work in with those negative-developing formulæ with which he has had the greatest experience and obtained the best results. It may be noted that nearly every well-known slide maker has some particular pet formula with which he seems to get any and

every result he desires. This goes to show that the virtue or merit is not so much in the formula itself, as the knowledge and skill of the person using it Every developing agent is good for some particular class of work, so each must select for himself.

(31) *Dry Pyro.*—Prepare the following solution: Soda carbonate (clean crystals of washing or kitchen soda), 1 oz.; water, 10 oz.; potassium bromide, 10 gr. To develop a slide take 1 gr. of dry pyro, add 1 oz. of the above solution, stir with a glass rod, and use as a developer. This gives a brown-black slide of a pleasing colour, and very suitable for architectural or woodland studies.

[The dry pyro is not weighed every time; but a small bone mustard spoon has the bowl part cut down to the size of a rather large pearl button, less than a threepenny piece, and this taken full ten times ought to weigh 10 gr. With a little practice and the use of one's eyes it is easy to pick up 1 gr. of pyro within a very small and negligeable error.]

(32) *Pyro* (*One Solution*).—Prepare as much only as is likely to be wanted at one bout of the following: Pyro, 3 gr.; potassium bromide, 3 gr.; potassium caustic, 5 gr.; ammonium carbonate, 6 gr.; water, 1 oz. This, with a full exposure on a *slow* lantern plate, gives a warm brown colour. This formula is not recommended for general use because of its tendency to stain the gelatine, but it is a useful one for special purposes.

(33) *Pyro Ammonia* (*Two Solutions*).—A: Pyro, 20 gr.; potassium bromide, 20 gr.; potassium metabisulphite, 60 gr.; water, 10 oz. B: Ammonia (.88°), 1 dram; water 10 oz. For normal use take equal parts of A and B. For reduced contrasts increase the exposure and dilute. For increase of contrast reduce the exposure, increase A and reduce B. This developer gives warm blacks and cool sepiacoloured slides. Some workers greatly prefer to substitute ammonium bromide for the potassium bromide in the above formula.

(34) *Pyro-Ammonia* (*Three Solutions*) for warm tones.—A: Pyro, 30 gr.; potassium metabisulphite, 30 gr.; water, 10 oz. B: Ammonia (.88°). 1 dram; water, 10 oz. C: Ammonia bromide, 1 oz.; ammonium carbonate, 1 oz.; water, 10 oz. For typical developer take ½ oz. of A, ½ oz. B, and 10 minims of C.

For warm tones increase the exposure and increase the proportion of C. This developer is said to give warm tones with and good brand of lantern plate.

As a rough guide, when giving four times normal exposure, double the quantity of C, or when giving ten times normal, use four times normal quantity of C, and so on.

(35) *Pyro Acetone*, for warm colours.—A: Pyro, 200 gr.; soda sulphite, 3 oz.; sulphuric acid, 20 drops; water 10 oz. B: Acetone, ½ oz.; water, 10 oz. For normal use take equal parts of A and B. It will be noted that the proportion of pyro is unusually high.

The resulting colours vary from black, through brown, to warm sepia, according to the relative increase of acetone. It has been stated that so long as the acetone does not exceed a certain small proportion, depending on the brand of plates, the colour of the slides remains the same for long or short exposures.

It may be of convenience to some readers to have at hand one or two hydroquinone developers of good repute.

(36) *Hydroquinone* (*Single Solution*).—Hydroquinone, 2 gr.; soda sulphite, 5 gr.; caustic soda, 1 gr. (½); potassium bromide, ½ gr. (3); water, 1 oz. It is best to prepare this at frequent intervals, as it does not keep in good condition very long. If warm tones are required, the proportions given in brackets should be substituted. The normal formula as above is for black tones.

(37) *Hydroquinone* (*Two Solutions*).—Retaining as our standard our original formulæ as given in para. 7, we may yet find it convenient to have an alternative. A: Hydroquinone, 80 gr.; soda sulphite, 400 gr.; citric acid, 40 gr.; potassium bromide, 40 gr.; water, 10 oz. B: Caustic potash, *or* caustic soda, 80 gr., *or* potassium carbonate, 600 gr.; water, 10 oz.

This will give us good blacks with normal exposure, or when the exposure has been generous and the developer diluted with an equal or greater quantity of water, warm engraving blacks.

(38) *Hydroquinone* (*Three Solutions*).—As before, we still retain that given already in para 7 as our standard. But the following comparable form may be in some cases regarded as rather more convenient. A: Hydroquinone, 120 gr.; sulphurous acid, 1 dram; potassium bromide, 30 gr.; water, 10 oz. B: Sodium hydrate (caustic soda), 60 gr.; soda sulphite, 1½ oz.; water, 10 oz. C: Ammonium bromide, ½ oz.; ammonium carbonate, ½ oz.; water, 10 oz.

For black tones the exposure should not be excessive, and developer composed thus: ½ oz. A, plus ½ oz. B, plus 1 oz. water.

For warm black, brown, or sepia tones the exposure should be increased three, six, or ten times. To the above developer then add five, ten or thirty drops.

With some slide makers eikonogen is a first favourite, therefore we append a couple of standard formulæ.

(39) *Eikonogen* (*One Solution*).—Eikonogen, 50 or 60 gr.; potassium bromide, 10 or 2 gr.; sodium sulphite, 50 or 90 gr.; water, 10 oz., 10 oz. For warm tones take the first given figures, and for black tones the second set of figures.—*The Amateur Photographer.*

(40) *Eikonogen* (*Two Solutions*).—A: Eikonogen, 100 gr.; potassium metabisulphite, 50 gr.; potassium bromide 20 gr.; water, 10 oz. B: Potassium *or* sodium carbonate, 200 gr.; sodium sulphite, 200 gr.; water, 10 oz. Take equal parts of A and B. This gives slides full of detail without excessive contrast.

(41) *Eikonogen and Hydroquinone* (*One Solution*).—This is a mixture recently revived and worthy of notice as a one solution mixture that keeps fairly well. Eikonogen, 20 gr.; hydroquinone, 8 gr.; citric acid, 20 gr.; sodium sulphite, 120 gr.; potassium bromide, to 9 gr.; potassium *or* sodium carbonate, 60 gr.; water, 20 oz. For warm tones increase the exposure upto ten times, and dilute the developer with water.

(42) *Metol* (*One Solution*).—Metol at one time was a very popular developer, but owing to the fact that with some *few* people it is apt to cause sore fingers and skin troubles, it has been rather neglected of late. It is, however, an admirable developer, giving any range of density with little or no tendency to stain the gelatine. Here is a worthy formula: Metol, 20 gr.; sodium sulphite, 200 gr.; potassium bromide, 2 gr.; potassium (*or* sodium) carbonate, 100 gr. Note the small proportion of bromide needed. With metol the image comes out very quickly, but gains density slowly. Therefore the general tendency is to stop development too soon. Hence the mistake of the common saying that metol will not give density. It will, but you must give it time.

*(To be continued).*

## COMPETITIONS.

*(Open only to Members of the Society.)*

SUBJECTS FOR MONTHLY COMPETITIONS.

For May „ ... *A Village Scene.*

HALF YEARLY COMPETITIONS—JUNE "*A Water Scene.*"

### RULES.

1. *Two Special Competitions shall be held, in each year, in addition to a monthly competition.*

2. *The Committee shall select the subjects for the Special Competitions, and notice of the selected subjects shall be announced in the Society's Journal in February and in July of each year. The subject for each monthly competition shall be selected two months in advance by the members present at the monthly meeting, and shall be notified in the next issue of the Society's Journal.*

3. *Pictures, &c., competing for Prizes at the Special Competitions must reach the Secretary by the last day of January and of May, and those competing at the monthly competitions must arrive in time to be shown at the monthly meeting.*

4. *Prizes will consist of Silver and of Bronze Medals, and of Certificates of Merit.*

5. *Not more than one Silver and one Bronze Medal shall be given at each Special Competition, and one Silver and one Bronze Medal may also be given at these competitions for excellence in copying, enlarging, lantern slides, or any other special branch of photography. One Silver and one Bronze Medal shall be awarded half-yearly to the exhibitors who obtain the highest and the next highest marks respectively at the monthly competitions. The number of Certificates of Merit granted at each competition is left to the discretion of the Judges.*

6. *A member may receive only one Silver and one Bronze Medal in the special, and one Silver and one Bronze Medal in the monthly, competitions, held during the same year; but should a member who has been adjudged a medal be disqualified under this rule from receiving it, he shall be given a Special Certificate instead, marked 1st or 2nd Prize.*

7. *A Special Committee of three members shall be appointed Judges by the General Committee to carry out, subject to these Rules, all arrangements connected with the competitions.*

8. *The Special Committee shall be appointed after the Annual General Meeting in January, and shall hold office for one year, and any vacancy occurring will be filled-up by the General Committee.*

9. *The Special Committee shall decide upon the merits of the pictures, &c., sent in for competition, and their decision shall be final. The system of judging the monthly exhibits shall be by awarding marks, a record of which shall be kept by the Judges, the marks being totalled and the results declared half-yearly. For this purpose, only the three highest marks awarded at each competition to each competitor shall be recorded, but not the aggregate marks gained by each for a number of exhibits.*

10. *If any member of the Special Committee is a competitor, the General Committee shall appoint a non-competing member to act as Judge at that competition instead of the competing member.*

11. *No exhibit shall compete twice, but pictures, &c., already exhibited elsewhere, may be sent in for the competitions.*

12. *Lantern slides sent in for competition shall be in sets of six, and shall be judged upon the screen.*

13. *The Special Committee shall not award any Prizes or Certificates, unless they consider the exhibits to be worthy of such distinction.*

14. *Each competing exhibit shall be the entire work of the exhibitor, and when sent in shall be accompanied by a Certificate in the annexed form:—*

> *"The (1) Arranging, (2) Exposing, (3) Developing, (4) Retouching (if any), (5) Printing and (6) Trimming and Mounting were done by me without assistance."*
>
> *Member, A. P. Socy. of Madras.*

15. *All pictures for the Special Competitions shall be mounted, and may, at the competitor's option, be framed but not glazed. Those for the monthly competitions need not be mounted, but should be trimmed.*

16. *Each competing picture should have a name or title, which should indicate the nature of the subject.*

17. *No competitor shall be allowed to send in more than six pictures to compete for any particular Prize, but the same member may compete in all branches specified in Rule 5.*

18. *The pictures gaining 1st and 2nd Prizes at the half-yearly competitions, and the best pictures sent for the monthly competitions, shall, when practicable, be reproduced in the Society's Journal.*

19. *To give up-country members an opportunity of seeing the competing pictures at the special competitions, the pictures shall be circulated to all members of the Society, not residing in Madras, who apply to see them. As this arrangement can only be carried out by the cordial co-operation of the members themselves, they are expected to forward the pictures without delay to the next member, and to send one of the accompanying post-cards to the Secretary, so that by this means the progress of the pictures may be traced.*

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**Ordinary Meetings**—*of the Society are held on the first Friday of each month at 6 p.m. and members are at liberty to introduce visitors: meetings take place at the Museum, Egmore.*

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