

Snatching the harpoon from its resting-place, and throwing a coil of rope on one of his arms, Sandy hurried to the shore, full of that fervour which the cry of "A fall!" used to excite in him of old. Jumping into the first boat he came to, Sandy was soon a conspicuous figure in the hunt as he stood erect in the prow, with the harpoon poised aloft in his right hand. Unfortunately for him, however, he never got a chance of using his weapon, for the whale as if by instinct avoided the neighbourhood of his boat. For upwards of an hour the animal dodged about without being able to pass the line of boats, and during that time it frequently appeared on the surface, and was assailed with oars and stones, and in one instance a small anchor was thrown upon its back. A bullet from a rifle struck it, evidently in a sensitive part, for it tumbled about in agony for some time afterwards, and it was noticed that the water was tinged with blood.

A feeling of pity for the animal which had struggled so bravely against its assailants now began to manifest itself, and the beaters of the water relaxed their efforts. The excitement was revived however when, after remaining for an unusually long time under the water, the whale was seen to be once more in difficulties on the sands, lashing the sea into foam with its tail, and making a loud noise as it blew jet after jet of water into the air.

None of the boats were near at this moment, but some venturesome persons among the crowd on the shore rushed into the sea to attack the animal as they best could, and to place themselves in a position to claim

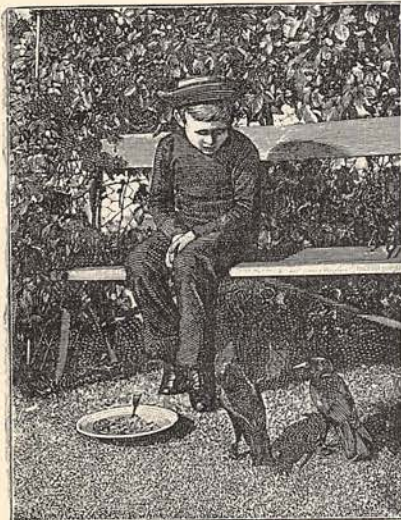
the prize should the whale fail to work itself clear of the sands. Their approach stimulated the animal to fresh efforts, and once more it got into deep water and headed seaward. When it next rose to the surface it was outside a number of the boats, and in a fair way to getting out of harm's way. A ready rifleman in one of the outer boats, however, succeeded in lodging another bullet in its body. This caused it almost to leap out of the water, and then taking a grand plunge into the deep, it continued its journey out of the bay at a speed which defied pursuit. It was seen to come to the surface several times afterwards, but was soon lost to sight.

The hunters, seeing their game beyond reach, then gradually returned to the shore and began to exchange speculations as to the size of "the fish," the quantity of oil it would yield, and the chances of its having received a fatal wound. Sandy Manson sulkily restored his harpoon to its old resting-place, and the townsfolk, after the passing thrill of excitement, resumed their avocations with renewed vigour. Three days afterwards, by which time the incidents of the hunt had been thoroughly talked out, the carcass of a whale was washed ashore at a fishing station a few miles south of Wick, and an examination of the wounds which it bore proved it to be the same animal that had afforded such an afternoon's excitement. One of the rifle-shots it was evident had reached a vital part, and the conclusion arrived at was that the whale had died within an hour or two after it got beyond reach of its pursuers.

DAVID BREMNER.

AMATEUR INSTANTANEOUS PHOTOGRAPHY.

BY THE REV. A. H. MALAN, M.A.



FEEDING THE CHOUGHs. (From an Instantaneous Photograph by the Author.)

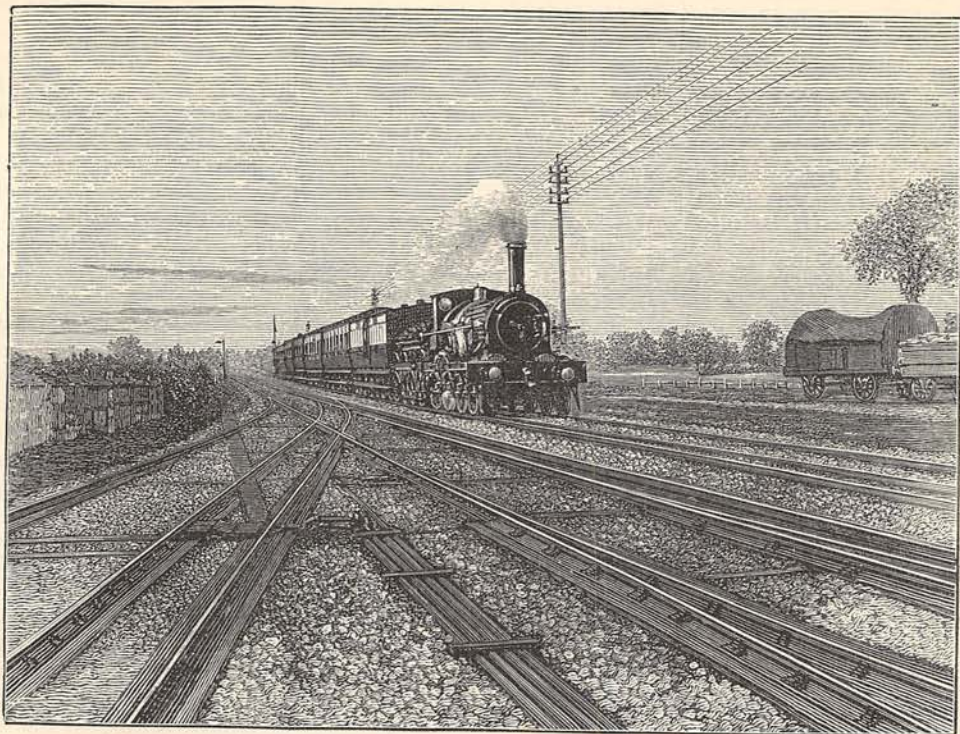
tered have been overcome, and the satisfaction has followed of feeling oneself no longer a helpless, floun-

IF there were not a fascination about a camera, which only increases with usage, few of those numerous amateurs who take up photography in consequence of its modern facilities would be found to persevere until the many difficulties to be encountered

dering beginner, but to some extent a master of the instrument. The outfit can be readily purchased at moderate cost, even down to the plate already prepared for exposure; but there are many difficulties not dreamed of in the old and easy "wet-plate" process, and there is no royal road to escaping them; experience can only be gained at the expense of various blunders, and even much bewilderment; but then the corresponding advantages also are so great, that no one having once learned to use gelatine plates would be likely to go back to collodion.

No apology, indeed, is needed for amateur photography. Not to speak of the power of being able to reproduce at any moment any object that may take the fancy, thus preserving for the future visible reminiscences of pleasant faces and pleasant places, it is one of those few hobbies which can be said to give almost equal pleasure to others as well as to the person who pursues it.

The mere suggestion, for instance, of taking the portrait of a friend or acquaintance quietly in the drawing-room will be hailed with acclamations of delight—"if only for the fun of the thing." For, however much people may differ in other respects, nine out of



THE "FLYING DUTCHMAN" GOING THROUGH COLLUMPTON AT SIXTY MILES AN HOUR.
(From an Instantaneous Photograph by the Author.)

ten have lurking vanity enough to make them like to see themselves on paper. In future articles we hope to give some hints about landscape and portraiture work; for the present we must confine our remarks to that branch of the art to which the heading alludes.

And considerable haze exists in most people's minds about it. Probably the reader may have noticed in some photographer's window the legend, "Portraits taken by the Instantaneous Process," and when the time has come for his or her portrait to be taken, has been considerably astonished at being requested to sit "quite still" for three or four seconds. The fact is, the title is misleading; there is no instantaneous process apart from the ordinary gelatine dry-plate in almost universal use. It should rather be "Under very favourable circumstances, Portraits may be secured Instantaneously."

True, some of the gelatine plates now in general use are more sensitive to light than others, and the sensitiveness depends not so much upon the actual ingredients in the film, as upon the method by which they were treated when the emulsion was prepared; but a modern dry-plate would be considered very slow which would not admit of a picture being taken on it in a second's exposure, *under certain circumstances*. But before thinking about the plate, the necessary apparatus has to be considered.

A cheap and by no means superior class of cameras and lenses has been introduced for the special capture of the unwary amateur, with which, if he be wise, he

will have nothing to do; for the best results cannot be expected from inferior appliances. The camera should be light, but rigid, with bellows-body, sliding front, swinging back, and three or more double dark slides, to take two plates each.

The size will depend upon purse and personal convenience. The larger the plate the more bulky must be everything concerned, and the greater amount of chemicals and sensitive paper required, all of which increase the cost; and the amateur who carries out his camera with him in search of the picturesque does not care to be burdened with more weight than is necessary. A good size is one to take plates $6\frac{1}{2}$ inches by $4\frac{3}{4}$, or 7 by 5, with carriers to take carte-de-visite plates, $4\frac{1}{4}$ by $3\frac{1}{4}$. If procured of some good maker, there would be no difficulty in exchanging it at any time for one of larger dimensions, if thought desirable. If only one lens is to be procured, there is none better for all-round purposes than a "Rapid Rectilinear," suited, of course, to the size of plate adopted. Besides camera and lens and tripod, there will be needed a shutter of some kind for making the exposure mechanically. A large variety are made, and the most expensive are not necessarily the best.

A sketch is given of a simple drop-shutter, which answers all requirements admirably, has a means of regulating the exposure at will, is the cheapest of any to buy, and is not beyond the skill of the amateur himself to make. It consists of a light mahogany frame, A (Fig. 1), with a circular hole in the centre, B, of the

same size as, and kept in close contact with the lens by a wooden ring, C (Fig. 2), which fits accurately on the lens' hood. The shutter, D, slides in two rebates in the frame, so smoothly that there is no jar, but so closely that no particle of light can enter the lens except during the exposure. A brass button, E, connected with a spring, Q, and a catch similar to, but lower down than F, keep the shutter in position, as in Fig. 1. When the button is pressed, the shutter falls by its own weight, and its opening, *a*, passes the orifice, B, giving the exposure; but it is prevented from falling out of the frame altogether, by a wire catch, G, which reaches the termination of a rebate cut for it at H. A slab of ebonite or cardboard, K, fitting in two rebates in the shutter, permits of the aperture being contracted to any required extent; and one or two elastic bands, fixed as shown at M, complete the apparatus.

Fig. 2 shows the lens and shutter fallen. It is a peculiarity of any lens that the larger the aperture through which light passes to the plate, the smaller becomes its power of reproducing objects in different planes in focus at one time. It is furnished with a series of diaphragms, or stops, to correct this shortcoming. These stops fit in a slot in the barrel of the lens, N; the largest aperture, of course, giving the greatest volume of light, which means the shortest exposure; but the smallest giving, though with much prolonged exposure, the best definition in both foreground and distance. And the problem that has to be solved in instantaneous work is, how to give *light* enough to make a developable impression on the film, *definition* enough to make the whole picture fairly in

focus, and *rapidity* enough to avoid perceptible movement in the object. To reconcile these contradictory things is matter for practical experiment.

As regards the plates, the beginner will certainly purchase them, having neither the knowledge nor ap-

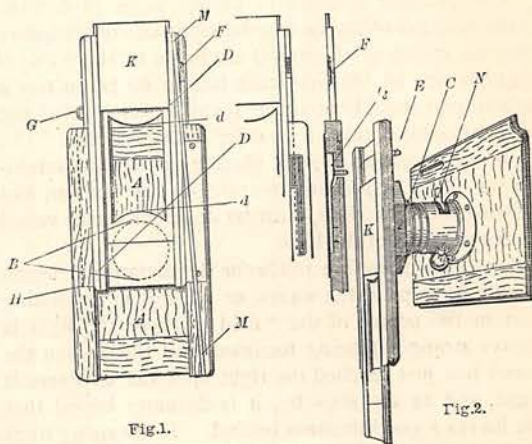


Fig.1.

Fig.2.

paratus requisite for making them. When progress has been made, and chemical and manipulating knowledge gained, it will add much to the pleasure of using them to feel that he has prepared them himself; but at least for some time after taking to photography it will be cheaper for him to buy them ready prepared.

The easiest kind of subjects to begin upon are



PICKING UP THE BOAT: FALMOUTH ROADS. From an Instantaneous Photograph by the Author.

breaking waves, children playing on the summer sands, animals and pets feeding or momentarily at rest. No great rapidity being required for such subjects, the full opening of the shutter may be used without any band; the more full the exposure, the less difficult the after-task of "bringing out" the negative.

A step further consists in taking ships in motion. If the position of the camera be at the end of a slippery pier, the spikes of the tripod are liable to slip; and if a stiff breeze be blowing, care has to be taken lest a sudden puff should catch the focussing cloth, and the whole machine take a header into the sea. The focussing, insertion of stop, placing the back containing the plate in position, putting on the shutter, and drawing the dark slide, must be done before the vessel passes the field of the lens.

A guess is therefore made for the distance at which it is likely to pass, the waves, or a buoy, or a passing boat in the centre of the "field" (where the light is always strongest) being focussed, and then, when the vessel has just reached the right spot the exposure is made, and as she slips by, it is devoutly hoped that she leaves a good likeness behind. If the rising front of the camera has not been used to cut off the very near foreground, or if the vessel has come rather too close, part of the topsail may be cut off, as seen in the print. Also, if the light be brilliant, the reflection from the water (always very great, and to be taken into consideration in regulating exposure) may cause diffused light enough to "fog" the image and spoil it, unless a small stop has been used; and, on the other hand, if a small stop *has* been used, perhaps the plate will be found so hopelessly under-exposed, that no satisfactory result is possible. A better position is the committee-boat at a Channel regatta, where yachts in racing trim will pass close by, in every variety of picturesque attitude. But the best way of all is, not to wait till the vessels come to us, but to go to them; to lash an upright plank to the bulwarks of a yacht, fasten the camera thereto, and when any suitable object presents itself, sail by at the right distance, and

take it passing, the exposure being so rapid that the movement of *both* vessels going in contrary directions will not even be observed in the negative.

But the quickest subject of all is a train at full speed. To obtain it perfectly "sharp" (*i.e.*, not at all blurred through movement), not end-on, but nearly broadside, requires not only most favourable conditions of light, a rapid lens, and a rapid plate, but almost as much command over camera and chemicals as the driver has over the "regulator." Slow trains may with advantage be first attempted, then quicker ones; and when experience warrants it, the wish will not be wanting to catch the fastest express as it rushes at full speed through some way-side station.

A good day with clear atmosphere is selected, brightened by full sunshine. Every precaution is taken to insure success in the way of reducing aperture of shutter, putting on it extra bands, polishing glasses of the lens, and choosing a position in which the sun will shine most effectively on the train. Every facility will willingly be afforded, for the "Flying Dutchman" is the pride of the line. The station-master sees that no goods-trucks are in the way; the signal-man reports from his box where the train is, and when to expect it; the porters are fired with a thirsting ambition to do something to further the project; and if the driver has been seen beforehand, he will have clouds of steam coming both from the safety-valve and funnel; and the thought of the enjoyment they will derive from receiving a picture materially increases the pleasure of creating it. The distant signal falls, the roar increases, the ground vibrates, and at the exact instant that the engine passes the spot focussed the click of the shutter is heard, and the driver, who observes everything (as express drivers must, and do), raises his spare arm in salute, only too proud to have his iron steed photographed; supposing the picture to be already finished, and visible; little surmising that the most critical part of the matter has yet to come, when the dark room is at length reached—developing the latent image.

HOW TO TAKE OUT A PATENT.

BY J. MUNRO, C.E.



BEFORE the passing of the new Patent Act it was acknowledged on all hands that the expense of a patent in this country was a heavy tax upon invention, and that many an excellent idea was lost to us as a nation because it occurred to some person who was too poor to turn it to account by protecting it with a patent, and subsequently working it out. The total cost of the Government

stamps in Great Britain was £25 for three years' protection, £75 for seven years, and £175 for fourteen years. Provisional protection for six months, to allow the inventor to test his idea and frame the final patent, cost £5. The professional patent agent's fees too, were commonly from £12 to £20 or more, and thus the British protection for a new invention during a period of three years actually cost the patentee some £50, a sum far beyond the pockets of an ordinary workman, and too much to be lightly risked by any one of modest means. By the new law, however, the provisional protection for nine

always take the place of fresh celery, but it must be very cautiously used—a salt-spoonful is quite enough for a gallon of soup; a bottle sufficient for a year's use in ordinary families may be bought for a shilling. Mixed herbs, too, must not be forgotten by those who would excel in soup-making, as they not only impart flavour, but develop more fully that of the vegetables, meat, &c., of which the soup is compounded. In the case of white soups, when milk is added, it should be brought separately *just* to the boil, and then put in at the last moment of serving, just as cream is in the *richest* white soups. Eggs should be stirred in off the fire—never boiled in the soup, or it will curdle—then returned for a moment to the range and well stirred.

Nothing, perhaps, makes a more nutritious purée than haricot beans or lentils; thorough washing of the latter especially is the first thing, then several hours' soaking and very slow boiling, followed by a vigorous rub through the sieve. Tomatoes, too—those sold in

tins will be quite good enough—furnish a tasty dish at a small cost. When the soup is required to be brown, a little sauce or ketchup and some browning should be added, and the meat and vegetables first fried a little. For white soups the vegetables only, not the meat, may be cooked in a little fat without taking any colour. This is a process known as “sweating,” or, better still, “steaming;” a few minutes will suffice, then the cold water or stock should be poured over; soup thus made has a very superior flavour. A purée of green peas (than which there is no better) is rendered still more delicious if the shells are cooked in the stock, which must be strained off before the peas are added. I have by no means exhausted my list of purées, but sufficient has been said, I trust, to give the amateur a fair idea of how to commence; other kinds may have attention (space permitting) in a future paper, together with recipes for clear soups, but it is best to try one's prentice hand on the thick kinds.

L. HERITAGE.

AMATEUR PHOTOGRAPHY.

BY THE REV. A. H. MALAN, M.A. THIRD PAPER.—PORTRAITURE.



PRINT I.—“VIGNETTE.”
(From a Photograph by the Author.)

STRANGE as it may seem, this is the least satisfactory branch of his art to the amateur. He is unfairly handicapped, yet he is required to produce portraits equal in merit to those taken by others who have facilities altogether beyond his own reach. His friends know little about his disadvantages, and care less; they are content with the fact that when they go to a “real photo-

grapher” they “come out” nice-looking people; when an amateur takes them they come out frights. Let us analyse this matter for one moment. To begin with, the thing is looked at from opposite points of view. The amateur—at least while in the early stage—aims only at technical excellence—a good photograph. If people will not put on pleasant expressions he laments the omission, but does not rate his work thereby; whereas sitters naturally care only for their looks, and, moreover, have a curious knack (with, of course, the exception of the reader and the writer) of expecting to come out far better-looking than they actually are.

Now the real photographer has a studio, with well-arranged side and roof windows, facing north, inde-

pendent of the sun. His lighting is ready-made; a thousand previous attempts, under precisely the same conditions, have made a badly-lighted model almost an impossibility. He has a portrait lens of large calibre, which will take a likeness in two or three counts; a head-rest for nervous folk; also a clever re-toucher.

And how is it with the much-abused amateur? Well, he wants to take a portrait of somebody, and as it is raining and blowing he ushers his guest into a sitting-room. Then he shuffles about the furniture, arranges the person near the window, and prepares for action, when—the sun blazes out: furniture, camera, and sitter must undergo a fresh re-arrangement. That effected, his small-apertured lens requires at least a dozen counts, during which, possibly, the sitter wobbles, and must be taken again. Or there may be no wind or rain, so he tries his luck outside; takes some portraits, as he thinks, on the whole creditably; and then, when the proofs are presented to the originals, there follow the usual comments:—
“Anyhow, I'm not like *that*; I've no hollow in my cheek!” “*What* an expression! I suppose it was the light.”

“I always *do* take badly; but why is my nose covered with black specks?—Perhaps you poured on the acid

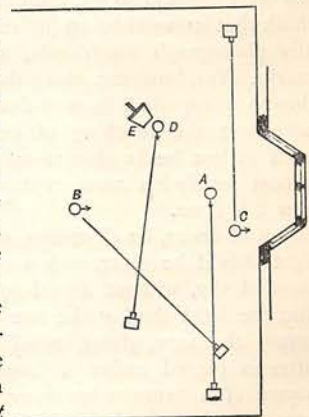


Fig.1



PRINT II.—GROUP. (From a Photograph by the Author.)

too soon^{22*}—and so on, until the portraitist begins to think that it would be an infliction, indeed, to perpetually photograph his friends, and listen to their remarks. Yet, knowing, alas! that much of the blame, though misapplied, is well deserved, he plods along, accepting the teaching of every imaginable error, until at last he is able to take a portrait which will almost satisfy his most captious critic. And this is how it is done.

Out of doors, by all means, when practicable. The light should be clear, with a sunny gleam through a clouded sky, without actual sunshine. It is desired that the light shall strike one cheek-bone, and brush across the face, giving relief and roundness. The sitter is placed under a branching tree, at the entrance of a summer-house, or under the canopy of a porch, so that the diffused sky-light may be partially

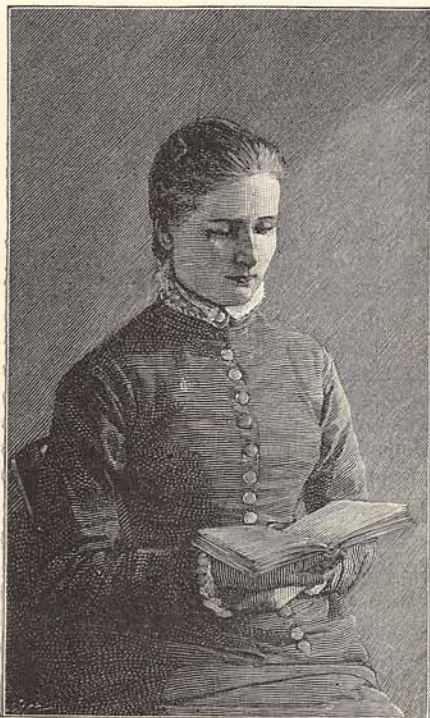
cut off. The back-ground is natural; a *picture* as well as portrait aimed at. The exposure being brief, the position may be sitting or standing, hat on or hat off, as preferred; only let the model be doing something—reading, working, picking flowers, stroking the cat—anything, in short, so long as it appears that nothing was further from the thoughts than the proximity of a camera.

In-doors the task is harder; but a large room with high bay-window will give the required space and light. Let Fig. 1 be such. Wanted, a screen, say five feet high, three feet wide, covered with white calico, with a hinged leg behind, to keep it upright; also, a back-ground, light one side, dark the other, to contrast with the clothes, unless the wall is painted with a dull body-colour, free from any device, which forms a good substitute. The lighting is studied before-hand, not to weary the model nor waste time. Suppose the sitter at A, looking in the direction of the arrow; one side of the face will be too light, the other

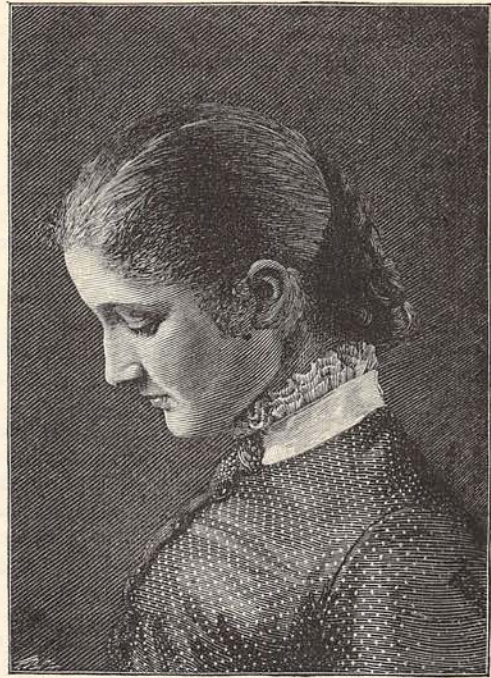
* Scathing sarcasm, from a fair creature desirous of airing her knowledge of chemistry.

too dark. Refer to the December Part of this Magazine, page 52; that is how a sitter would look, stationed at B; both sides of the face equally illuminated—flat and insipid. The lighting will be regulated by the style of face. For instance, if the nose be an uncomely member, full face will be best; but if the profile be fair to look upon, then the sitter is placed at C, and a Rembrandt easily obtained (Print IV.). As a general rule, however, a “three-quarter” face is the most becoming (Print III.), for which the right position is D. Refer, once more, to the frontispiece of the December Part, and notice how transparent the shaded side of the face is rendered by the reflection of the fire-light from the white shoulder of the dressing-gown. This transparency, in a portrait, is effected by bringing the screen E near the sitter, and inclining it at such an angle as to reflect the sky-light upwards.

Then the posing. Sitters are plastic, not originaive; they usually loll back helplessly in a chair, attitude and expression alike suggestive of a visit to the dentist. A vignette-head is the easiest and most pleasing—one side rather better lighted than the other, but the whole harmonious, and in good relief (Print I.). If the whole figure be desired, the person should be seated; if standing, the sky-light might not reach the head, which would be then badly lighted. Whatever be the position, let no part of the subject draw off the attention of the eye from the face; a bunch of white flowers, for example, on a black dress, should be temporarily removed. Aim at a graceful, unconstrained pose, and let any accessories be simple and tasteful.



PRINT III.—SEATED FIGURE.
(From a Photograph by the Author.)



PRINT IV.—“REMBRANDT.”
(From a Photograph by the Author.)

In every-day life people do not stand, dressed in their gayest apparel, against marble balustrades, with mountains at their backs; neither do they recline on velvet arm-chairs when in the leafy umbrage of a wood; nor even go boating in a craft licensed to carry one baby; these remarkable phenomena must be looked for only within the “artistic” precincts of a real photographer’s studio. Let the model lean forwards (Print III.); if leaning back, in an ordinary chair, the chin will be out of proportion, the forehead too small. The camera should look down upon, not up to the face.

When the lighting and posing are accomplished, the spark of light well in the eyes, but the eyes not squinting, nor too much on one side, and the appearance on the ground-glass exactly what is wanted, then it should be remembered that it is unfair to stare at a person during the agonising moments of exposure, and that before removing the cap it will ease the mind of the sitter, and probably insure a better result, if one says, “Keep as still as you can; but I shall not look at you, to see if you move.” However, if, when all is ready, just the right expression is on the face, then off with the cap, without a word; watch the sitter, and at the first sign of movement, replace the cap, if only a quarter of the right time has elapsed. One is content with a mere sketch instead of a finished portrait, so long as the *right expression is secured*.

Groups should generally be taken out of doors. Lawn tennis, five o’clock tea, the pony-carriage at the door, &c., suggest suitable surroundings. Let there be some central idea, and arrange the figures to suit it; let

the picture have some tale to tell, and tell its own tale (Print II.); and altogether avoid placing a row of chairs in a semi-circle, with a row of staring people thereon, like Christy minstrels awaiting the opening joke.

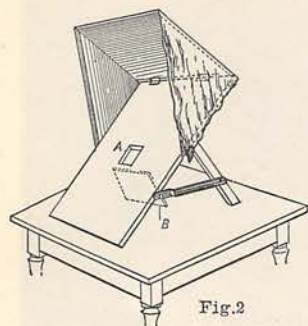
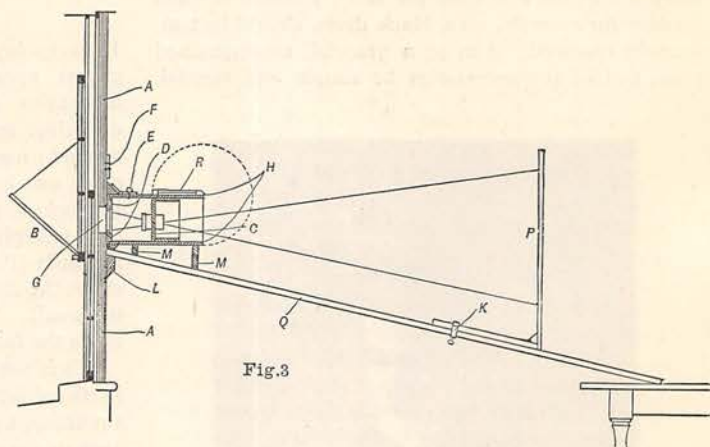


Fig. 2 shows a re-touching desk; it is placed close to a window, and no light is allowed to reach the eye but that which is strongly reflected by a mirror, B, up through the negative contained in the aperture, A. People generally do not know how many of their charms, photographically speaking, they owe to the re-toucher. The light on the face, at the time that a portrait is being taken, is so bright, that every wrinkle, spot, and small inequality in the skin will be intensified and exaggerated on the negative. Freckles, being yellow, come out quite black in a photographic print. To remove these (*i.e.*, to build up the negative-film where they occur), to lessen over-strong shadows, and cover any blemish, is the legitimate work of a re-toucher; but when, especially in the elderly, every wrinkle is taken out, and the whole skin looks as if it were smoothed with sand-paper, then truthfulness is altogether sacrificed to flattery. The negative being rubbed with powdered cuttle-fish on the ball of the finger (or being varnished with a matt varnish), to give a suitable "bite," a sharp, hard, long-pointed pencil is very gently pressed on the various defects, until the texture of the film is homogeneous; then the shadows under the eyes are lessened; and high lights are put in, with a brush, and neutral tint—if the pencil will not give sufficient density—over the eyebrows, on the bridge and end of the nose, and on the chin (Print I.).* First attempts at re-touching will be dreadful; it requires a delicate touch and skilful eye; but patient practice gives such a command over a negative, that the amateur will never regret having taught

* Crystoleum painters might take a hint; they too often make the complexion all one tint, almost destroying the natural modelling of a face.

himself how to do it, and his old sitters will come back, with smiles of approval on their brow, because he makes them now "so like themselves." Such is human nature.

Enlarging a portrait is an easy and pleasant amusement; it can be effected independently of the weather, and the enlargement nicely worked up in oils, chalks, or even pencil, or neutral tint and Chinese white. An enlarging lantern is often used; but preferring daylight, our own method is as follows:—A mirror, B (Fig. 3), is fixed at forty-five degrees on the lower sash of the outside window. A shutter, A, in two parts, the joint covered by a slip of wood, F, is fixed on the whole window, with a square hole, G, to receive the light reflected from the sky by the mirror. Inside, a strong board, Q, resting at one end on a bracket, L, fastened to the shutter, at the other on a table, supports horizontally a box, H, held in contact with the shutter by a hinge and peg, E, containing, as shown, a carrier, D, in which is the negative upside down, and a lens and well-fitting interior box, C. The image is received on a perpendicular screen, P (covered with white paper), which slides along Q, and can be clamped at any spot by the thumbscrew K; C is moved backwards or forwards, both to adjust the focus, and obtain the requisite size of the enlargement. When all is ready the end of H, containing a pane



of ruby glass, R, is shut down, the sensitised material pinned to P, R raised again during the time of exposure, and then lowered once more; and when the chemicals have done their duty, the print, dried, touched up, and made beautiful for ever, is despatched to some surprised and unexpectant recipient.†

† See also "Photography for Amateurs," by T. C. Hepworth, Chapter IV., page 45 *et seq.* (Cassell & Co.)

