

EXPOSURE IN AMATEUR PHOTOGRAPHY OVER-EXPOSED AND UNDER-EXPOSED PLATES—HINTS CONCERNING INSTANTANEOUS PICTURES

THE correct time for exposing a negative plate for both indoor and outdoor work has been one of the greatest stumbling blocks to the amateur. Scores of times I have been asked: "How do you determine the proper time of exposure to make a successful picture?"

A number of booklets have been issued by makers of cameras and others, setting forth the exact period required, for the exposure of plates under every imaginable condition of light and shade, for both landscapes and interiors; but these pamphlets frequently prove very confusing. The best instructor is your own judgment combined with experience.

In my early days with the camera, I frequently experimented in exposing my plates and made a multitude of notes on this important subject. Now, however, the correct exposure under the various conditions of light is an instinctive knowledge, and I time my exposures much as the expert "off-hand shot" with rifle or pistol fires at the mark without appearing to take aim.

As his grasp of his gun decides the deadly aim of the trapper, so to the experienced photographer the period of time is not a calculation, but an instantaneous conclusion acquired by long practice. In my experience one of the surest guides on this point has been the ground glass of my camera. Regulate the diaphragm or stop in your lens, and when the subject to be photographed is reflected on the ground glass, note carefully the degree of light and the time of exposure, and make a memorandum of the same for future reference. Thus you will gradually learn to compare and judge of the respective times of exposure demanded by the different degrees of light.

Suppose, for example, you make your first experiment by placing in the holder a "Seeds" "Gilt Edge" No. 17" Sensitometer plate.

This plate is capable of very quick exposure, your lens is of moderate aperture, the subject to be photographed is a landscape, and the day is clear and sunny. Focus carefully with a magnifying glass, place the stop No. 18 in the lens, note the light on the ground glass, and remember the degree of intensity. Give the plate an exposure of one-half second. Make another exposure of one second under the same conditions, then another one of one and one-half seconds.

It would also answer the same purpose, but be decidedly more economical, to use but one plate for this experiment, drawing out the slide covering the negative plate only a third of the way and giving this portion an exposure of one-half second. Then draw the slide out another third of its distance and expose one-half second, thus giving an exposure of one second to the first portion of the plate uncovered. Finally remove the slide altogether and expose another half second; you will thus have secured an exposure of one and one-half seconds for the first third of the plate, an exposure of one second for the second third of the plate, and an exposure of one-half second for the last third of the plate. All this of course must be very carefully done in your experiment will be a failure.

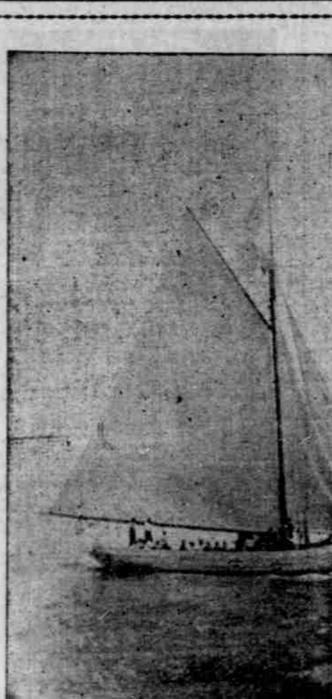
You now have three exposures under the same conditions. Develop them carefully, and should the negative or that portion of it which has been given three seconds appear as plate No. 18, you will draw the conclusion that it has been over-exposed. The various objects in the picture will be well defined, as are the trees, bridge, etc., in the accompanying picture, and quite sharp when viewed through a magnifying glass, although the whole picture will have a dull and hazy effect.

Of the two evils, over or under-exposure, the former is to be preferred, for in that case you can always get a better picture by developer and save the good qualities of the negative, but if under-exposed there is not much hope for the picture.

I am fully cognizant of the fact that



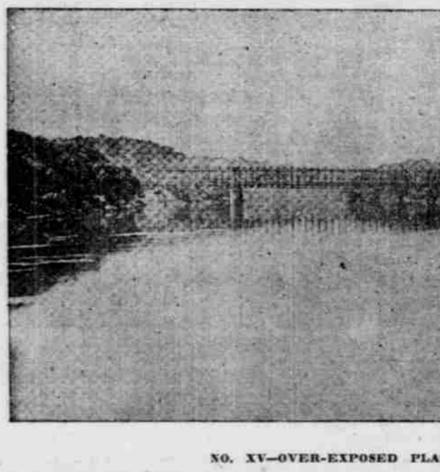
NO. XVI—UNDER-EXPOSED PLATE.



NO. XVIII—INSTANTANEOUS EXPOSURE.



NO. XVII—IN WHICH PERPENDICULAR OBJECTS LEAN.



NO. XV—OVER-EXPOSED PLATE.



NO. XVIII—CAMERA SHUTTER TOO SLOW.

there are many formulas both for the intensification of under-exposed plates and for the reduction of those over-exposed, but I claim that it is far better to learn the correct exposure and thus secure more uniformly satisfactory re-

sults both in finish and in the harmony of light and shade in the negative. **XVI—Under-Exposed Plates.** As a process of education, it is well to look upon a picture which has the fault opposite to the one just considered. In

the under-exposed photograph shown in illustration No. 15, you will observe that the details are not sharply defined as in the one printed from the over-exposed plate. An under-timed picture has the appear-

ance of fog—it has what is called a "mottled" look. This effect is more difficult to counteract than that of over-exposure; and even when every means to improve the picture has been used it is not satisfactory. The amateur should

strive to learn the method of correct exposure, and practice it until he is able to counteract that of over-exposure; and even when every means to improve the picture has been used it is not satisfactory. The amateur should

ographer. Often the picture is correct in every other respect, the focus is good, the exposure is right and the development is satisfactory. Why, then, after all, is the picture so disappointing? Why do the trees, buildings, fences and other perpendicular objects lean as if about to fall to the earth? This is the fault shown in illustration No. 17.

It is caused by wrong perspective, and any lens will show it regardless of the price—the wide angle lens even more than others. Any photograph of a high building, when taken from the ground, will show this defect in the result, no matter what lens is used, unless the camera has a swing back which enables the photographer to adjust the ground glass to a vertical position. By examining the image in this vertical position it will be noticed that the image is correctly portrayed, and when the plateholder is adjusted in the same vertical position the exposure will produce the picture in correct perspective. This shows the necessity of using a swing back to avoid this fault which cannot otherwise be eliminated with the hand camera that does not have the swing back.

XVIII—Instantaneous Exposures. Truly instantaneous photography is one of the most difficult branches of the art of picture-taking. It requires not only a quick eye, but good, as well as swift judgment, keen perception and a thorough knowledge of the details of photography. To these qualities should be added coolness and deliberation enough to snap the shutter at the proper moment—or rather fractional part of a second in most cases. You should be neither too slow nor too fast or you will lose the peculiar effect you desire to capture.

An enthusiastic amateur attempted to make an instantaneous photograph of a locomotive and train of cars, which were tearing along at the rate of a mile a minute. He snapped the shutter, as he supposed, at the moment the train was passing; but the plate, when developed, revealed only a bare track, with no trace of "the living engine and its train."

In illustration No. 18 A, the yacht had passed the position of the camera, and the shutter was snapped—thus rendering the representation incomplete. But for this slowness on the part of the operator, the picture would have been good in all its details.

Do not stand too close to the scene or object to be photographed. For instance, if you wish to make a picture of a train of cars at full speed, take a position fully a hundred and fifty feet distant and make your exposure at an oblique angle, say 45 to 90 degrees, with the moving train coming toward you. The distance scale of your camera should be set at 100 feet or the universal focus. Contemplate the approaching train with calmness, and when it appears in full view upon the center of your camera finder, snap the shutter. Hold the camera firmly, and do not hesitate or delay action for even the hundredth part of a second. To obtain the best results in this class of work, patience and experience are necessary.

Should the object taken move faster than the speed of the camera shutter the result of the negative will be as shown in illustration No. 18 B. The speed of the shutter must exceed the speed of the subject photographed.

Study the best effects, even in instantaneous work; if it appears that the center of the passing train is about to blow his whistle or make a signal, wait as long as you can for the more artistic picture. If the subject is in motion, choose the point of view which presents the most attractive background. All these details should be considered and with care can be made to count in the finished work.

Many amateurs seem to desire only instantaneous work, because there is more excitement in it; yet in most cases this very excitement is the cause of the failure to make a picture that is worth anything. Perseverance and vigilance will finally overcome all difficulties, and he who has patience to continue in this work will find himself amply rewarded.

THE TWO VANREVELS

BY BOOTH TARKINGTON

Author of "Monsieur Beaucaire," and "The Gentleman From Indiana"

By a single chain of circumstances Miss Betty Carewe has come to confuse Tom Vanrevel and Crayley Gray, belle of Rouen, Ind. In the days just preceding the Mexican war, Tom Vanrevel and Crayley Gray, belle of Rouen, Ind. and her father's mortal foe. The two men have quarreled over politics and also on a personal matter and old Carewe has threatened to sue them both. Tom Vanrevel, however, in love with Miss Betty at first sight, Crayley Gray, lazy, generous, popular, talented, good-looking, and well-to-do, has decided to engage to Miss Fanchon Barend, but it is becoming evident that he, as well as Tom, has fallen under the spell of Miss Betty's beauty. Shortly after the two old Carewe's great warehouses catch fire, Tom Vanrevel is chief of the Rouen fire department, and Crayley Gray is the chief of the fire department of the city of New York. The two men are both determined to climb to the roof of one of the burning buildings. Miss Betty is watching the proceedings from the outside of the crowd.

CHAPTER V.

The chief, three-fourths of the way to the top, shouted a stifled command, and a short grappling ladder, fitted at one end with a pair of spiked iron hooks, was passed to him. Then he toiled upward until his feet rested on the third rung from the top; here he turned, setting his back to the wall, lifted the grappling ladder high over his head so that it rested against the eaves above him, and brought it down sharply, fastening the spiked hooks in the roof. As the eaves projected fully three feet, the chief of the fire department hanging that distance out from the wall, its lowest rung a little above the level of the chief's shoulders.

Miss Betty looked on with a little shocked outcry. There was a small terraced hill of piled-up packing boxes near her, possession of which had been taken by a company of ragamuffin boys, and she stood on the summit of the highest box and sharing the summit with these questionable youths, almost without noting her action in mounting thither, so strained was the concentration of her attention upon the figure high up in the roscoglog against the warehouse wall. The man, surely, surely, was not going to trust himself to that bit of wooden web hanging from the roof.

Where was Miss Barend that she permitted it? Ah, if Betty had been Fanchon, and madwoman enough to have accepted this madman, she would have compelled him to come to her feet, and for a moment would lock him up in the house whenever the bells rang!

But the roof was to be mounted or Robber Carewe's property lost. Already little flames were dancing up from the chimneys, where firebrands had fallen, their number increasing with each second. So Vanrevel raised his arms, took a hard grip upon the lowest rung of the grappling ladder, and tried it with his weight; the iron hooks bit deeper into the roof; he held. He swung himself out into the air with nothing beneath him, caught the rung under his knees, and for a moment hung there, while the crowd withheld from breathing; then a cloud of smoke, swirling that way, made him the mere ghostly nucleus of itself, blotted him out altogether, and, as it rose slowly upward, showed the ladder free and empty, so that at first there was an instant when they thought that he had fallen. But, as the smoke cleared, there was the tall figure on the roof.

It was an agile and a daring thing to do, and the man who did it was mightily applauded. Crayley, however, did not understand below what would happen to

the "Engine Company" in case the water was not sent through the lines directly; and what he said should be done to the engineers included things that would have blanched the cheeks of the most inventive Spanish quixote that ever lived.

Miss Betty made a gesture as if to a person within whispering distance. "Your coat is on fire," she said, in an ordinary conversational tone, without knowing she had spoken aloud, and Mr. Vanrevel, more than 100 feet away, seemed particularly conscious of the pertinence of her remark. He removed the garment with alacrity, and, for the lack of the tarry water, began to use it as a fall upon the firebrands and little flames about him; the sheer desperate best of a man in a rage, doing what he could when others failed him. Showers of sparks fell upon him; the smoke was rising everywhere from the roof and the walls below; and, growing denser and denser, shrouded him in heavy veils, so that, as he ran hither and thither, now visible, now unseen, stamping and beating and sweeping away the brands that fell, he seemed but the red and ghostly caricature of a Xerxes, ineffectually lashing the sea. They were calling to him impudently to come down, in heaven's name to come down!

The second man had followed to the top of the ladder against the wall, and there he paused, waiting to pass up the line of hose when the word should come that the force-pump had been repaired; but the chief thought that he waited because he was afraid to trust himself to the grappling ladder. He was afraid, exceedingly afraid, though that was not why he waited; and he was still chuckling over the result of the chief's orders.

His situation had not much the advantage of that of the chief; his red shirt might have been set with orange jewels, so studded it was with the flying sparks; and, once more, hanging head downward, he seized the nozzle; then, with his knee hooked tight, as the gushing water deflected a huge semi-circle upon the smoke and hot vapor, he made a mad lurch through the air, while women shrieked; but he landed upright, half-sitting on the lowest rung. He climbed the grappling-ladder swiftly, in spite of the weight and contortions of the unmanageable beast he carried with him. Tom leaped far down and took it from him; and Crayley, passing the eaves, fell, exhausted, upon the roof. Just as he reached this temporary security, a lady was borne, fainting, out by the acclaiming crowd. Fanchon was there.

CHAPTER VI.
The Ever Unpractical Feminine.
It was an investigating negro child of tender years, who, possessed of a petty sense of cause and effect, brought an illuminating simplicity to bear upon the problem of the force-pump; and a multitudinous agitation greeted his discovery that the engineers had forgotten to connect their pipes with the river.

This naive omission was fatal to the second warehouse; the wall burst into flames below Crayley Gray, and he clung to the top of the ladder, choking, stifled and dizzily fighting the sparks that covered him, yet still clutching the nozzle of the hose line that he passed to him. When the stream at last leaped forth, making the nozzle fight in his grasp, he sent it straight up into the air, and let the cataraet fall back upon himself and upon the two men beneath him on the ladder.

There came a moment of blessed relief, and he looked out over the broad roar of faces in the street, where no one wondered more than he how the water was to reach the roof. Suddenly he started, wiped his eyes with his wet sleeve and peered intently down from under the shading arm. His roving glance crossed the smoke and flame to rest upon a tall, white figure that stood, full-length, above the heads of the people, upon a pedestal wrought with the grotesque images of boys; a girl's figure, still as noon, enrapt, like the statue of some young goddess, for whom were made these sacrificial

pyres. Mr. Gray recognized his opportunity. A blackened and unrecognizable face peered down from the eaves, and the voice belonging to it said, angrily: "You can't; I'll come down for it. Don't be every kind of fool!"

"You want a monopoly, do you?" And Crayley, calling to Tappingham Marsh, next below him, to come higher, left the writhing nozzle in the latter's possession, swung himself out upon the grappling-ladder, imitating the chief's gymnastics, and immediately one hand grasping the second rung, one knee crooked over the lowest, leaned head down and took the nozzle from Marsh. It was a heavy weight, and though Marsh supported the line beneath it, the great stream hurtling forth made it a difficult thing to manage, for it wriggled, recoiled and struggled as if it had been alive. Crayley made three attempts to draw himself up, but the strain was too much for his grip, and on the third attempt his fingers melted from the rung, and swung down fearfully, hanging by his knee, but still clinging to the nozzle.

"Give it up, Crayley! It isn't worth it," Vanrevel called from overhead, not daring the weight of both on the light grappling-ladder.

But though Crayley care no more for the saving of Robert Carewe's property than for a butterfly's wing in China, he could not give up now, any more than as a lad he could have forborne to turn somersaults when the prettiest little girl looked out of the schoolhouse window. He passed the nozzle to Tappingham, caught the second rung with his left hand, and, once more, hanging head downward, seized the nozzle; then, with his knee hooked tight, as the gushing water deflected a huge semi-circle upon the smoke and hot vapor, he made a mad lurch through the air, while women shrieked; but he landed upright, half-sitting on the lowest rung. He climbed the grappling-ladder swiftly, in spite of the weight and contortions of the unmanageable beast he carried with him. Tom leaped far down and took it from him; and Crayley, passing the eaves, fell, exhausted, upon the roof. Just as he reached this temporary security, a lady was borne, fainting, out by the acclaiming crowd. Fanchon was there.

Two others made an attempt to follow, and would not be restrained. It was noticed that parts of the lower ladder had been charring and the laddermen were preparing to remove it to a less dangerous point, when old General Trumble and young Jefferson Barend made a rush to mount it, and were well upon their upward way before the ladder, weakened at the middle, sagged, splintered, and broke, Trumble and Barend falling with it. And there was the grappling ladder, dangling 60 feet above the ground; and there were the five upon the roof.

The department had no other ladder of more than half the length of the shattered one. Not only the department, but every soul in Rouen, knew that; and there rose the thick, low sigh of a multitude, a sound difficult to hear. It became a groan, then swelled into a deep cry of alarm and lamentation.

And now, almost simultaneously, the west wall of the building, and the south wall, and all the southwestern portion of the roof, covered themselves with voluminous mantles of flame, which increased

so hugely and with such savage rapidity that the one stream on the roof was seen to be but a ridiculous and useless speck.

Everybody began to shout advice to his neighbor, and nobody listened even to himself. The firemen were in as great a turmoil as was the crowd, while women covered their eyes. Young Frank Chenoweth was sobbing curses upon the bruised and shaking Trumble and Jefferson Barend, who could only stand remorseful, impotently groaning, and made no answer.

The walls of the southernmost warehouse followed the roof, crashing inward one after the other, a sacrificial prey to its purpose consummated; and in the seethe and flare of its passing, Tom Vanrevel again shaded his eyes with his hand, and looked down across the upturned faces. The pedestal with the grotesque carvings was still there; but the crowning figure had disappeared—the young goddess was gone. For she, of all that throng, had an idea in her head, and, after screaming it to every man within reach, only to discover the impossibility of making herself understood in that babel, she was struggling to make her way toward the second warehouse, through the swaying jam of people. It was a difficult task, as the ladder in she managed to go the densest became the press and the more tightly she found the people wedged, until she received involuntary aid from the firemen. In turning their second stream to play ineffectually upon the lower strata of flame, they accidentally deflected it toward the crowd, who separated wildly, leaving a big gap, in which Miss Betty took instant advantage. She darted across and the next moment, unnoticed, had entered the building through the door which Crayley Gray had opened.

The five young men on the roof were well aware that there was little to do but to wait, and soon they would see which was to win, they or the fire; so they shifted their line of hose to the eastern front of the building—out of harm's way, for a little time, at least—and held the muzzle steady, watching its work. And in truth it was not long before they understood which would conquer. The southern and western portions of the building had flung out great flames that fluttered and flared on the breeze like Titanic flags, and steadily, slowly at first, then faster as the second wave, the five were driven backward, up the low slope of the roof toward the gable ridge. Tom Vanrevel held the first joint of the nozzle, and retreated with a sulky face, lifting his foot stragglingly at each step. They were all silent now, and no one spoke until Will Cummings faltered: "Surely they'll get a rope up to us somehow!"

Will knew as well as did the others that there was no way; but his speech struck the sullen heart of the chief with remorse. He turned. "I hope you'll all forgive me for getting you up here."

A sound, half sob, half giggle, came from the parched lips of Eugene Madrilion, as he patted Tom on the shoulder without speaking, and Crayley nodded quietly, then left the group and went to the eastern edge of the roof and looked out upon the crowd. Cummings dropped the line and sat down, burying his hot face in his arms, for they all saw that Vanrevel thought "it was no use," but a question of a few minutes, and they would retreat across the gable and either jump or go down with the roof.

Since the world began idle and industrious philosophers have speculated much up-

on the thoughts of men about to die; yet it cannot be too ingenious to believe that such thoughts vary as the men, their characters, and conditions of life vary. Nevertheless, pursuant with the traditions of minstrelsy and romance, it is conceivable that young, unmarried men, called upon to face desperate situations, might at the crucial moment rush to a common experience of summoning the vision, each of his heart's desire, and to meet, each his doom, with her name upon his lips.

An extraordinary thing occurred in the present instance, for, by means of some fragmentary remarks left at the time, and afterward recalled—such as Tappingham Marsh's gasping: "At least it will be on her father's roof," and from other things later overheard, an inevitable deduction has been reached that four of the five gentlemen in the perilous case herein described were occupied with the vision of the same person, to wit: Miss Elizabeth Carewe, "the last—the prettiest—come to town!"

Crayley Gray alone spoke not at all; but why did he strain and strain his eyes toward that gable ridge, with the grotesque carvings? Did he seek Fanchon here, or was Miss Carewe the last sweet apparition in the fancies of all five of the unhappy young men?

To coincide of the actual appearance of the lady among them, therefore, seemed the more miraculous when, wan and hopeless, staggering desperately backward toward the gable ridge, they heard a clear contralto voice behind them: "Hadin't you better all come down now?" It said: "The stairway will be on fire before long."

Only one thing could have been more shockingly unexpected to the five than that there should be a sixth person on the roof, and this was that the sixth person should be Miss Betty Carewe.

They turned, aghast, astupe, chappfallen with astonishment, stunned and incredulous.

She stood just behind the gable ridge, smiling amiably, a most incongruous little pink fan in her hand, the smoke-wreaths partly obscuring her and curling between her and the pink fan, and little mist floating across the night moonlight.

Was it but a kindly phantasm of the last vision of the lost Volunteers? Was it a Valkyrie assuming the lovely likeness to the perch upon this erye, waiting to bear their heroic souls to Valhalla, or—was it Miss Betty Carewe?

To the chief she spoke—all of them agreed to that afterward—but it was Crayley who answered, while Tom could only stare and stand wagging his head at the lovely phantasm, like a mandarin on a stool.

"My mother in heaven!" gasped Crayley. "How did you come up here?"

"There's a trap in the roof on the other side of the ridge," she said, and she began to fan herself with the pink fan.

"A stairway runs all the way down—old Nelson showed me through these buildings yesterday—and that side isn't on fire yet, so I'm so sorry I didn't think of it until a moment ago. I'm sure it would have brought the water up that way. But don't you think you'd better come down now?"

CARE OF THE BATHROOM

NO MORE scrupulous task awaits the housemaid than the daily care of the bathroom, and as modern sanitation has made her task comparatively a light one, it should be most faithfully performed. The rug, preferably of washable material, should be daily shaken and the floor, if of tile, wiped with a damp cloth. Wooden floors should be dusted with one of the long-handled lamb's wool brushes used for floors, special pains being taken to reach under and behind the fixtures to remove every accumulation. That everything thus collected should be burned seems obvious, but long and rigorous training is sometimes required to persuade the ignorant not to drop them down the water closet. Nothing is more provocative of plumbers' bills than to do so, even bits of soap, harmless as they seem, having a tendency to collect all other solid particles, and cause an accumulation which it will cost much to remove. The interior of the catch-basin must be daily cleansed with a long-handled, stiff brush, slightly curved at the end. Do not buy a cheap one, as the bristles will fall out.

Avoid the use of sapolio or cleansing powders for cleaning the marble basin and the bathtub. Strong sapolio, with ammonia or soda should be used, not and then, but for the daily care of these fixtures, as well as the water faucets, the quickest and best cleanser is gasoline. Moisten a small cloth with this and a quick rubbing will cause the streaks of greasy dirt to disappear as if by magic. All nickel is at once brightened by its use. There are objections to its odor, but fresh air from the windows, opened at the top and bottom, will remove this.

For safety, never do this cleansing with gasoline when there is artificial light of any kind in the room; never light a match when it is being used, and use only a small bottle for holding it, hanging this outside the bathroom window when not using it, with the wire fastened to its neck for the purpose. For cleansing the overflow holes in the wash basin, use a small bristle brush, see that there are no accumulations in the openings where the water runs off, and wipe all shelves frequently. All soiled linen should be daily removed, and fresh cloths and towels put in its place. This daily care, the occasional use of a good disinfectant, and a frequent flushing of all openings with clean water will impart a comfort and well-being to the household not rivaled in any other department, except, perhaps, the kitchen.

Fallopia Hint.
Minneapolis Messenger.
There is a little matter to which the Messenger begs to call the attention of some of its subscribers. We really have to speak of it, but some have seemingly allowed it to slip their minds. To us this is a very important issue. In fact it's necessary to our business. We won't speak of it, but some have seemingly already guessed the drift of our remarks.

Trusts 10,000 Years Old.
Successful American.
It is claimed that there are 100,000 years old. There are, indeed, evidences that one of the Kings of Egypt ran a brick-making monopoly, and it is indisputable that the water works of the city of Babylon, a conspicuous part in public affairs, in Scriptural times.