

MODERN AMATEUR PHOTOGRAPHY.

BY F. C. BEACH, PH.B.

THE extensive practice of amateur photography at the present time as an aid in many pursuits pertaining to art, and also solely as an amusement and recreation, must be attributed to the marvelous discoveries and improvements made since the time of Daguerre.

A few years ago, just prior to the introduction of the present process, when the wet or collodion process was in use, to be an amateur photographer required an intimate knowledge of chemistry and a large amount of practical experience; added to this was the annoyance of staining the clothes and fingers with solutions of nitrate of silver.

A photographic pleasure trip in the country in those days involved, in addition to the burdensome camera and equipments, the carrying of bottles, chemicals, and paraphernalia for setting up a dark chamber or tent in the field, since it was necessary to bring the picture out immediately after an exposure had been made. Unless special precautions were taken in regard to the strength and temperature of the solutions, no satisfactory results could be obtained. In consequence of these hinderances the practice of the process was largely confined to the studio, where the conveniences for rapid manipulation were ready at hand. Various processes were invented for preparing plates in a dry state, that they might be utilized in the camera at the convenience of the operator. But the manipulation required in making them was tedious, and the sensitiveness of the plates decreased.

The next advance to be noted was the introduction of the sensitive salts directly with collodion, flowing the latter upon the plate and drying the sensitive film. Plates thus coated were as sensitive as those prepared by the wet collodion process, and at the same time retained their sensitiveness for a long period. This process, termed the "collodion bromide emulsion process," was brought to a high state of perfection in this country through an extensive line of experiments carried on in 1876-7 by Mr. Henry J. Newton, of New York, an amateur photographer, and the present President of the Photographic Section of the American Institute, who also proposed and used the soda de-

veloper now generally employed on gelatine plates.

Coming now to the process of the present day, by which plates of lightning rapidity and excellent keeping qualities are prepared—a process which has revolutionized all previous methods—a brief sketch of its origin and of the authors who were instrumental in perfecting it will doubtless be interesting. While Pontevin and others suggested the use of gelatine as a medium for holding sensitive salts, it was not until Dr. R. L. Maddox, in September, 1871, published in the *British Journal of Photography* the results of some of his experiments on the combination of bromide of silver with gelatine that a new impulse was given to the preparation of sensitive plates.

His formula at once proved to be practical, and was taken up and perfected by other scientific men. Dr. Maddox, it should be added, was an enthusiastic amateur photographer, residing in London, and devoted himself chiefly to the practice of microscopy and the use of photography in connection therewith. The new sensitive compound, though no more sensitive to light than others previously published, had the merit of being easily prepared, and of retaining its sensitive qualities for almost any length of time, and in this respect was of material advantage.

How to increase the sensitiveness of the gelatine silver compound was the next problem, and this was easily solved by the experiments of another amateur photographer, member of a firm of hatters in London, Charles Bennett by name, who in 1878 found that a prolonged application of heat (90° F.) to the liquid emulsion—from three to five days—produced a remarkable change, increasing the sensitiveness of the emulsion from ten to twenty times. Upon the solicitation of his friends he published a full detailed account of his method, freely giving it to the public.

Succeeding Bennett, in 1879, Captain W. de W. Abney and Lieutenant-Colonel Stuart Wortley, both amateurs in scientific photography, obtained greater sensitiveness in a very short time by employing a higher degree of heat, even raising it to the boiling-point. Follow-



DR. R. L. MADDOX.
From a photograph by J. THOMSON, London.

the use of heat, which was effected by the addition to the emulsion, at a particular stage, of a small quantity of liquor ammonia; the time required to prepare it was very short, while the deterioration of the gelatine by heat, liable to occur in former processes, was entirely avoided. The formula met with immediate success, resulting in greatly simplifying



HENRY J. NEWTON.
From a photograph by HUGH O'NEIL.

ing close upon these discoveries, sensitive plates bearing Bennett's name were prepared and sold exclusively, but it was not until about 1880 that their merits and advantages began to be fully appreciated.

In the fall of 1879 Dr. D. Von Monckhoven, of Ghent, Belgium, a German chemist, interested in photography, read before the Belgian Photographic Association his new formula for obtaining an extremely sensitive emulsion without



CAPTAIN W. DE W. ARNEY, R.F., F.R.S., PRESIDENT
OF THE LONDON CAMERA CLUB.
From a photo. by ADAMS AND SCANLAN, Southampton.

which tended to produce high sensitiveness.

Since the preparation of the sensitive emulsion and the coating of plates requires more time and trouble than the average amateur has to spare, very few undertake it. Hence it is that within a very few years immense establishments have been built up in the United States and Europe expressly for the purpose of manufacturing the plates on a large scale, based, it would seem, on the simple fact of their



CHARLES BENNETT.

the process of preparing sensitive emulsions. At this day, though Monckhoven died in 1882, plates bearing his name are commercially sold. Other amateurs, such as A. L. Henderson, of London, and Dr. J. M. Eder, of Vienna, Austria, should be noted as men who have made minor improvements in the manipulation of the process, all of



DR. D. VON MONCKHOVEN.



AMPHITHEATRE OF NAESDAL, LOENVAND, NORWAY.

Photographed by HENRY A. ROWLAND, awarded a Diploma at the Boston Exhibition, 1888.

remarkable keeping qualities, and the supply required by both professionals and amateurs.

It is estimated that there are seven large establishments, with perhaps thirty smaller concerns, in the United States, whose annual output is not far from seven million dozen plates, which has resulted in the introduction of a vast and growing industry, involving probably the consumption of thousands of tons of glass and hundreds of pounds of silver, imparting also a special impetus to the manufacture of all forms of photographic apparatus.

Starting with the advantage of purchasing his sensitive plates ready for use, neatly put up in light tight paper boxes, the amateur photographer of to-day has a comparatively easy time.

In apparatus all that is required is a light substantial camera, usually of a size sufficiently large to take in a five by eight plate, a good lens of the rectilinear type, a shutter, a compact folding tripod and stand, and half a dozen double plate-hold-

ers, each one holding two plates, ready for exposure in the camera, all of which may be purchased from manufacturers in style and prices to suit the taste and purse of the intending photographer.

The beginner, after having secured suitable apparatus, should first familiarize himself with its working. He will need to learn how to focus and place the reversed image on the ground-glass correctly, to know when to use the rising front and swing-back, and to see that the camera stand is properly levelled. After these points are acquired, the question of exposure and development should be studied. As regards exposure, practical experience is necessary. No general rule can be given. The guides to be considered are the brilliancy of the image on the ground-glass, the rapidity of the plate, the time of day, and the subject, whether it is a dark shady nook or a brilliantly illuminated sea-scape. A few experiments will teach more than an elaborate description in books. There has been lately introduced an instrument

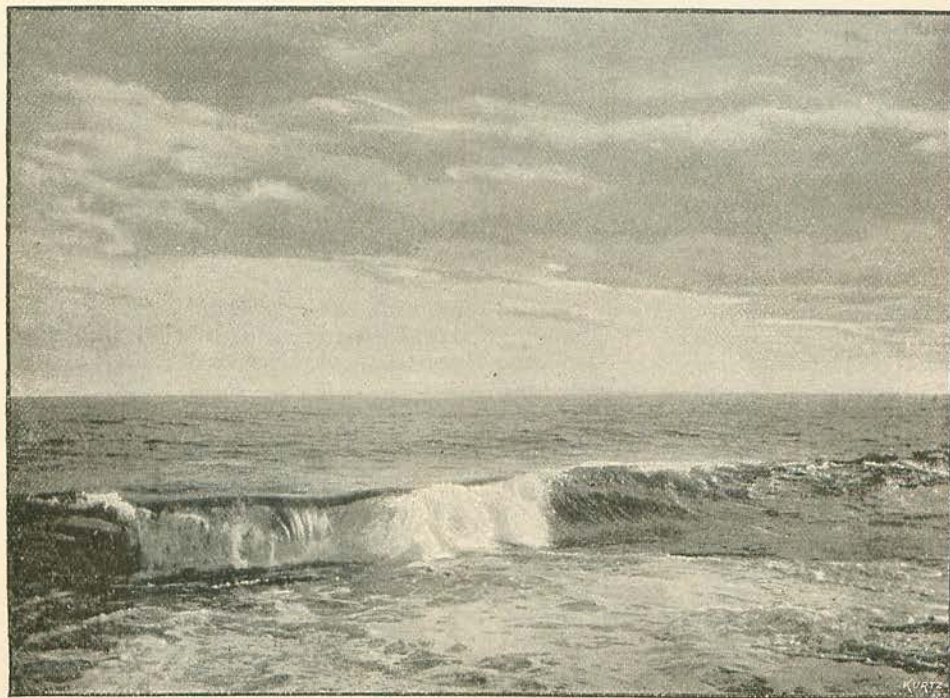
about as large as a good-sized watch, termed a "Photometre," for accurately determining the proper exposure. When used it is placed in contact with the ground-glass, and an internal disk is rotated until three small holes, arranged in a radial line on the disk, appear to merge together. Then a reading is taken which tells how many seconds exposure should be given. Being based on the principle of the brilliancy of the ground-glass, it appears to work satisfactorily in practice. Concerning the proper development of the exposed plate, more skill and patience are required than are ordinarily expected, but it is easier to learn how to do it correctly by observing the manipulations of a skilled operator than in any other way.

The development of the plate usually occupies about ten or fifteen minutes. It is frequently hard for beginners to tell when to stop the development. In general they are apt to stop too soon, producing thereby negatives too weak and devoid of contrast. Developers ready for use are sold, saving the beginner considerable trouble, but those who have the time prefer to prepare their own solu-

tions. The manipulation is quite easy. Under the ruby-orange light the sensitive plate is removed from the holder and laid in a rubber tray previously partially filled with water. After a minute's soaking the water is poured off, and the developer, consisting of water, pyro, and potash, is poured on. In the course of two minutes the picture appears, and soon gradually develops out fully, when the plate is washed and the image fixed in a hypo-sulphite of soda solution.

One of the most attractive amusements of the amateur is the making of instantaneous pictures. Plates of the highest sensitiveness are employed, and additional care is required to successfully develop them. The possibilities and interesting results that are to be had from such pictures have stimulated the invention of numerous forms and styles of shutters, some of which enable the operator to reduce the interval of exposure to the one-five-hundredth of a second.

In special cameras, designed to be carried about in the hand, and commonly called "detective cameras," shutters of high speed are generally employed, and



WAVE AT CRANBERRY ISLAND, NEAR MOUNT DESERT, MAINE.

From an instantaneous photograph by HENRY A. ROWLAND.



OPERATING A DETECTIVE CAMERA.
From a photograph by CHARLES SIMPSON.

are either arranged directly in front of the lens or between lenses. Much ingenuity has been displayed in concealing all resemblance to a photographic apparatus in these cameras. Those mostly used are made in the form of a physician's medicine case, covered with rough leather, or to look like a hand-satchel. They hold half a dozen plates, and are fitted with convenient devices for quickly setting the shutter, for focussing, for changing the plates, and are provided also with miniature lenses and reflectors, called finders, which enable the operator to tell when the object to be taken is in the field of view. As these cameras are quite light and portable, they have become very popular and numerous. They attract no

attention, and on that account are particularly useful when photographing in crowded streets or when one is travelling.

One of the latest small cameras is arranged to hold enough sensitive paper to make a hundred negatives before it needs to be renewed, and weighs a trifle less than two pounds. The pictures are made in panoramic fashion on a ribbon of paper, and are cut off when developed. To operate the instrument it is only necessary to snap the shutter and wind off the paper, as one would wind up a clock, when it is ready for the next exposure.

The accompanying illustration, made from a photograph, shows the amateur in the act of releasing the shutter of one of these cameras. Mr. Thomas Bolas, editor of the London *Photographic News*, is believed to have been the first to suggest a concealed portable camera.

Perhaps the most successful and ingenious concealed camera is one arranged to be suspended from the neck, behind the vest, having the miniature lens projected through a button-hole in the vest, and constructed so as to match the other buttons. The sensitive plate is circular in form, held in a round thin light metal case. After an exposure is made the plate is readily rotated forward until a new section is brought behind the lens. A convenient cord depends behind the vest from the releasing mechanism of the shutter. In taking a picture it is only necessary to walk up to within a few feet of the object, then to quickly pull the string; a slight sound or click at once apprises the operator that the picture is taken. Six negatives may be made on one



AN OLD NEW YORK BROOM MAN.
From an instantaneous photograph.



THE PET PONY.—Photographed by JAMES E. BRUSH.

plate, the size of each being about one and a half inches square. From these, enlarged pictures are easily made.

In Germany this camera is styled "The Button Camera." It is becoming very popular there, especially with artists and military officials, and it is reported that as many as three hundred are now carried by the Russian police.

The small picture on page 292 represents the actual size of those obtained with the Button Camera, and was made by R. D. Gray.

Other portable cameras are constructed in novel forms, such as watches, hats, revolvers, and opera-glasses, intended to conceal their photographic character.

In making outings for pleasure, amateurs sometimes meet with curious and novel experiences. An incident which actually occurred may be related as follows: One spring afternoon the writer and a friend, while carelessly strolling through a neighboring town with their cameras, were accosted in front of a resi-

dence by the proprietor somewhat as follows: "Say, Messrs. Photographers, will you take a picture of my little girl and her white pony? I will pay you for your trouble. Never have had the pony photographed." We replied that, as we were amateurs, we did not photograph for profit, and at first declined; but as he pressed his request more urgently, and as the subject was one of unusual interest, we consented to try our skill. The result may be seen in the illustration on this page.

Amateurs frequently come across strange and grotesque personages, some of whom are inclined to be refractory. It is said a few Indians out West have learned to know about the camera, and will not pose for a picture unless they receive a five-dollar bill. In such cases the detective camera accomplishes the work without their knowledge.

In 1885 an American firm introduced paper prepared with a sensitive coating of gelatine and silver as a substitute for

glass, with special apparatus for applying it to the camera. This invention met with considerable favor.

Since that time improved methods have been adopted by which the picture, after being finished, is readily stripped off from the paper support and mounted on a transparent film of flexible but heavier gelatine. A negative in every respect equal to the transparency of glass is thus obtained, and about one-tenth as heavy. Such material immensely lightens the weight one has to carry, and is of special value and usefulness when long journeys are to be undertaken. The sensitive paper can be readily sent by mail to all parts of the world, making it very easy for the amateur to get a supply. Bromide paper is also used in making prints from negatives by artificial light, and is adapted to be used on a wet negative, enabling a proof to be made as soon as the negative is developed. The same paper is well adapted for enlarging purposes, since a small negative can be thrown, in an apparatus similar in construction to a magic lantern, upon a screen of sensitive paper, the exposure lasting a few seconds or minutes, according to the strength of light employed. After exposure the enlarged positive picture is developed and fixed as in the process of making positive prints. For doing the work successfully, good negatives, not too dense, but perfectly sharp and clear, are required.

Ordinarily, before the introduction of this paper, enlarging was done by sunlight in an expensive apparatus termed a solar camera, or by means of the electric-light. Now the amateur at small expense may readily utilize his own camera as an enlarging apparatus by arranging about it dark curtains. Either natural or artificial light may be used, as best suits his convenience.

The preference which many amateurs have for small light cameras (aside from their convenience when travelling) is due, no doubt, to the small expense involved, and to the fact that pictures from small negatives may be readily enlarged upon the gelatino-bromide paper. From small negatives lantern slides suitable for the *magic lantern* are also easily made by placing the prepared dry plate in contact with the negative and exposing to artificial light for a few seconds. The plate is then developed, fixed, and dried in the usual way.

So many advantages are placed before the amateur by reason of the advancements recently made in the art that he may find amusement in its practice at almost all seasons of the year. During the spring, summer, and autumn months outdoor work is his chief delight, while in the winter months he may practise portraiture, enlarging, or manufacture lantern slides, giving subsequent enjoyment to his friends by showing his pictures on the screen at private parlor magic-lantern exhibitions.

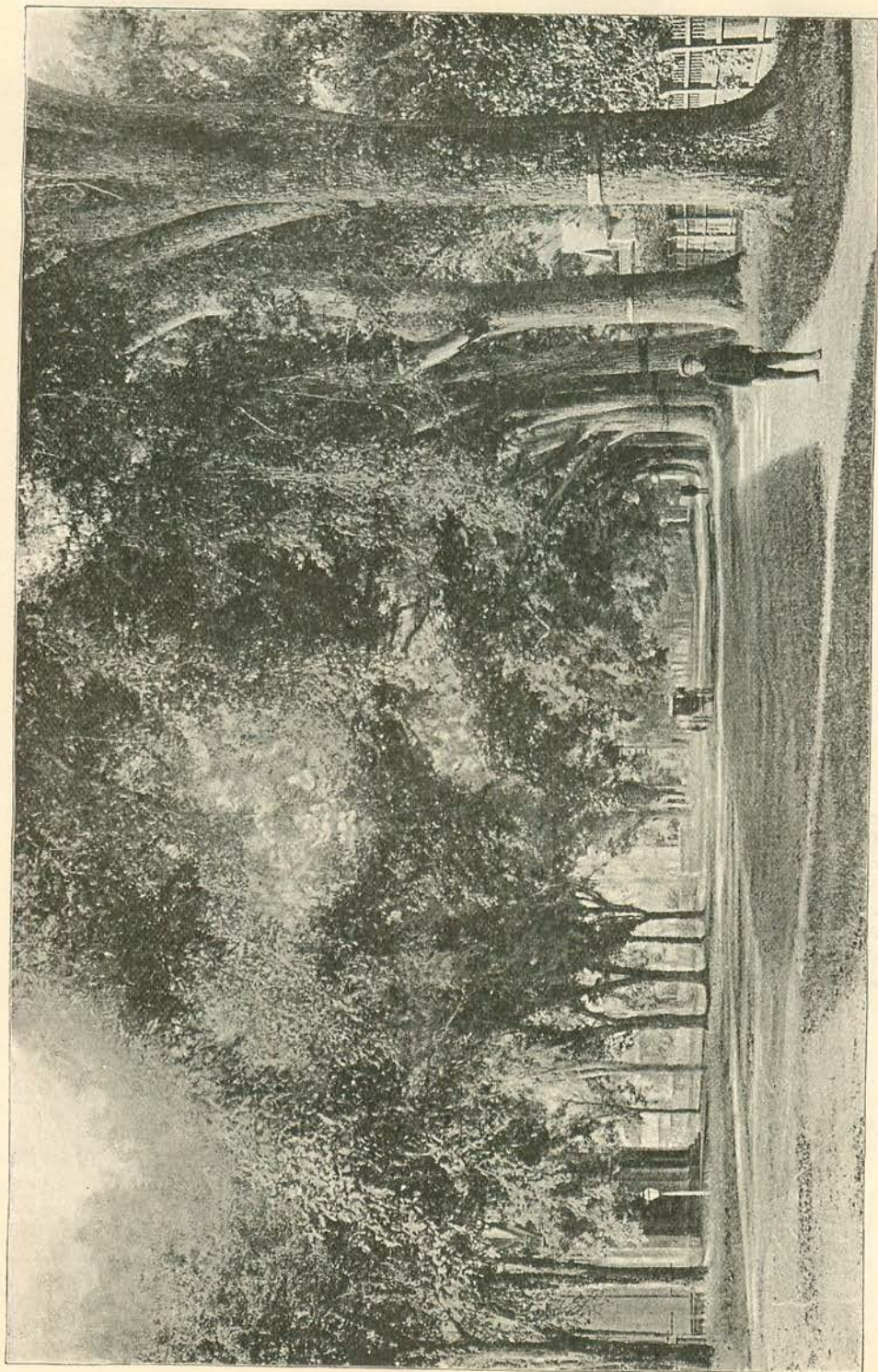
In several respects the making of a lantern slide is more simple than the manipulation required to produce a silver print, and as the picture is on glass, it is more delicate and beautiful in its finer details and graduations than it is possible to obtain on paper. Many amateurs prefer the making of slides to the slow process of printing, since they can be made at night, by lamp-light, out of business hours.

Amateurs will hail with delight the introduction of a new platinotype paper recently invented by a Mr. Pizzighelli, which prints out direct like silver paper, but which is rapidly fixed after printing by simply immersing for a few minutes in a bath of water containing a trace of hydrochloric acid. The color of the picture resembles that of an old engraving.

Photographs may be made very easily by moonlight, by gas-light, and electric-light, but the quickest artificial light is the magnesium-light. A short taper or ribbon of magnesium, four feet long, lighted with a match, will in many cases be sufficient. A new flash magnesium-light for taking instantaneous pictures at night has been introduced by Dr. H. G. Piffard, of New York, and is coming into general use among photographers. The photographing of evening parties, suppers, and weddings is a feature that some enthusiastic amateurs enjoy.

The outcome of recent researches and experiments is the production of special sensitive plates adapted for use in photographing colors, which renders the plates of special value in copying paintings, photographing autumn foliage and flowers. It would occupy more space than we can spare to describe the process.

The examples of amateur work accompanying this article, it may be mentioned, are all reproduced direct from the original photographs by improved phototype pro-



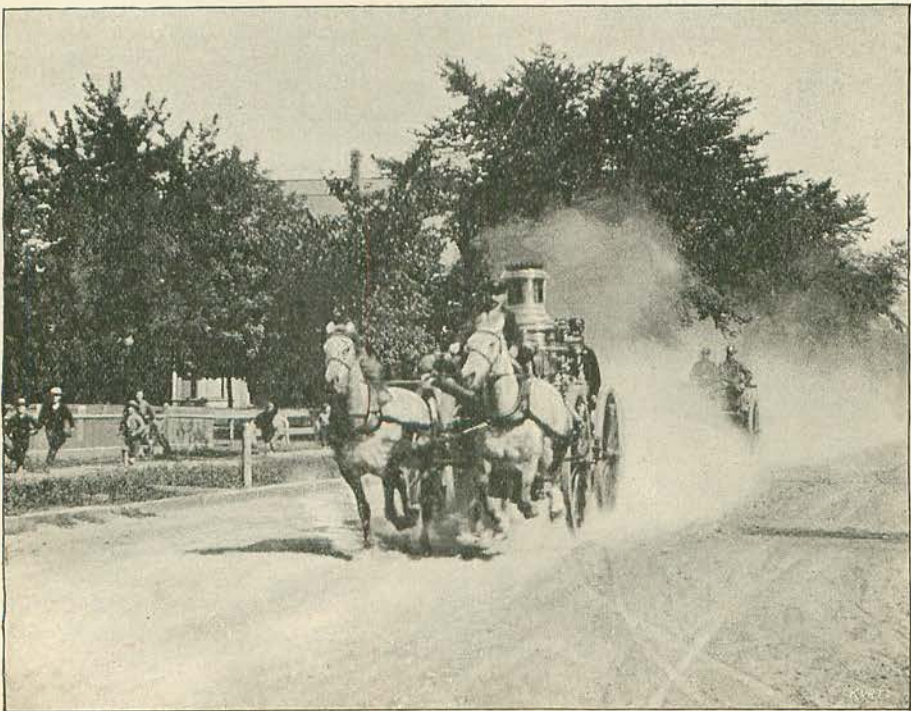
STRATFORD ON THE HOUSETONIC.—Photographed by F. C. Bracci.

cesses, showing the remarkable progress that has been made in the application of photography to book illustration.

As a result of the rapid growth in the practice of amateur photography, numerous clubs have been organized in various parts of the country, which serve the useful purpose of bringing amateurs together, that they may compare their experience and obtain by such discussions considerable practical information. Special facilities for work are also generally provided, such as convenient dark rooms, printing and enlarging apparatus, and in some cases skylights, for the practice of portraiture. Where an amateur is compelled by force of circumstances to do his work in a small, close, unhealthy closet used as a dark room, the roomy facilities of the club are especially attractive. Aside from the technical knowledge derived from an association of this kind, is the study of art as displayed in the composition of photographic pictures when these are shown in the form of lantern slides upon the screen. For this reason it is now the practice of many clubs to entertain their members and friends at frequent

intervals with lantern exhibitions, which, as may well be imagined, generally prove very interesting and attractive. In order to give them variety a special system of exchange of lantern slides is carried on between a limited number of clubs, by which the pictures of one club are shown before six others. From the six hundred lantern slides thus collected and shown in one season two hundred of the best are selected and sent to England in exchange for a like number contributed by various foreign clubs. In this way the work of home and foreign clubs is very pleasantly and profitably compared. It is customary also for clubs to give an annual exhibition of their work, lasting from two days to one week, and it is usually at such exhibitions that the progress in the art becomes more marked. Diplomas or medals are usually awarded by a competent board of judges.

Three societies—the Society of Amateur Photographers of New York, the Boston Camera Club, and the Photographic Society of Philadelphia—have recently united, under special rules and regulations, in giving annual exhibitions of their combined work, in rotation in their re-



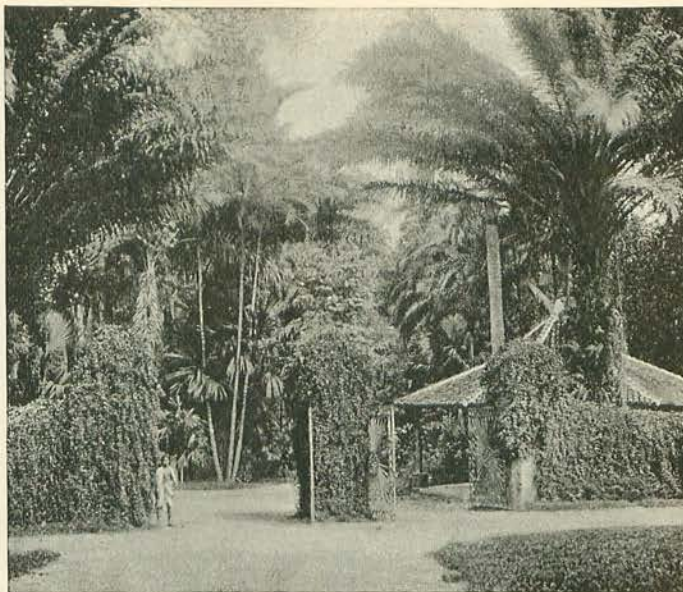
STEAMER NO. 5 ON THE RUN.—From an instantaneous photograph by A. F. Bishop.

spective cities, with a view of bringing together once a year extensive exhibits of photographs.

The first exhibition of this character was held in New York in the spring of 1887, and by reason of the variety and the excellent standard of work exhibited, attracted considerable attention. The second exhibition was held in Boston in May, 1888, and the third will occur in the spring of this year in Philadelphia.

One of the most progressive and flourishing societies is the Amateur Society of this city, numbering nearly three hundred members, which was organized nearly five years ago. Conveniently located near Broadway, at 122 West Thirty-sixth Street, it occupies two floors, one being neatly fitted up as a meeting and club room, having specimen photographs hung on the walls, also equipped with a photographic library and current publications, while the upper floor is divided up into several work-rooms, among which is a pleasant studio neatly furnished and provided with expensive portrait camera; also there is a commodious dark room fitted up with all the modern conveniences. More than a hundred lockers are provided for the use of members for the storage of their apparatus and plates. Instruction and information are given by a professional photographer steadily employed by the society. Here the amateurs gather during the winter evenings and practise different branches of the art, according to their taste, using the expensive apparatus of the society, relate their experiences, develop exposed plates, and enjoy many social chats. Meetings and lantern exhibitions are usually held each month, except during the summer, when very enjoyable field excursions take their place.

Physicians, lawyers, artists, army and navy officers, merchants, architects, pub-



ENTRANCE TO THE PERADENIYA GARDENS, KANDY, CEYLON.

Photographed by C. D. Irwin.

lishers, brokers, chemists, school-teachers, and several ladies are among its members, showing a diversity seldom found in the practice of any other art.

It should be stated that the oldest existing photographic society organized by amateurs in the United States is said to be the Photographic Society of Philadelphia, dating back to 1860. The society has a remarkably good record, and has been foremost in promoting all that pertains to the science and art of photography.

In literature American amateurs have no special representative, but in England one journal is published devoted exclusively to their interests. The New York society and the London Camera Club publish their proceedings in pamphlet form once a month for distribution among their members.

Having started with a great impetus, it is evident the practice of photography will soon become universal, will be as useful in a family as music, an excellent recorder for the tourist, artist, lecturer, historian, and engineer. In addition to its general usefulness it will elevate the public taste to a higher appreciation of the merits of truly artistic pictures, and thereby exercise a subtle educational influence which will be ennobling as well as enduring.