

Some Modern Achievements of the Camera.

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“**P**HOTOGRAPHY,” it has been said, “is one of the three great discoveries of the age—the steam engine, the electric telegraph and photography.” No five centuries in human progress can show such strides as these, and photography, let us remember, is the youngest of the three.

The pursuit of photography gives exercise to the body, while it diverts the mind, and delights with ever a higher joy the sense for all things beautiful. The amateur photographer is shown things by the camera which he never dreamed of before, and is led by it into the secret haunts of nature, of whose existence even he was previously ignorant. Truly it is a fascinating art, and one that benefits in the most vital and lasting ways, while it gives pleasure to the devotee.

And wonderful have been the achievements accomplished in less than fifty years, for the daguerrotype—the method which underlies our modern process—was not made public until 1839. Dry-plate photography is only about ten years old, and most of the progress in this delightful art-science has therefore been accomplished within the past decade. The dry plate made possible instantaneous photography and all the late advances.

The late Emperor Frederick of Germany, on being shown an instantaneous photograph in an instrument called the tacyscope, exclaimed that its truth to nature, down to the simplest details, was “simply astounding,” and that “the first glimpse almost takes ones breath away.” In this remarkable instrument an instantaneous photograph appears, not a picture of life, but life itself.

The tacyscope was invented by a Prussian in the imperial service named Ottma Anschütz. Colonel Anschütz had made many wonderful photographs of animals in motion, and sought a means by which he could present them as the original subjects appeared in life. He devised the tacyscope. In this instrument instantaneous photographs are shown in such a way that the subjects seem actually to be living before

us, and this wonderful effect is accomplished in the following manner:

A series of instantaneous photographs is put on a circular glass plate, which is rapidly turned round on its axis, and whenever a picture appears before the eye of the observer it is lit up by an electric spark. The natural motion of the subject is reproduced with a degree of truth and accuracy that is absolutely bewildering. Looking thus at the representation of a man on a galloping horse every single movement of horse and rider can be followed. Not only do the legs of the horse move according to the gait, but one sees the dust rise, the horse's mane and tail fly out and the nostrils extend. The rider is jerked in his saddle, he urges his horse, pulls the curb chain, and moves back his leg to apply the spur exactly as in life.

This recalls the remarkable achievements in instantaneous photography of Prof. Eadweard Muybridge, of the University of Pennsylvania. He used a battery of cameras so arranged that a moving object passing before them would automatically release the exposing shutter on each camera in succession, and thus a series of photographs showing the successive positions in various motions was obtained. He afterward exhibited his photographs thus obtained in the simple little toy known as the zoetrope, by which means the photographs, revolving before the eye of the beholder, represented the motion of the living subject. Professor Muybridge has now a method by which he can throw his moving subjects in an enlarged form on a screen by means of an optical lantern. Other photographers have accomplished no less remarkable results with their instantaneous cameras, amateurs especially taking the lead in this branch of photographic work.

Mr. John C. Hemment, of Brooklyn, has made the camera an indispensable adjunct to the judges of all close finishes. He is the official photographer of the Coney Island Racing Association, the Monmouth Park Association, the Saratoga Association and many other of the leading racing associations. All close finishes are photographed by him. He photographs in less than the one-thousandth part of a second, and thus succeeds in securing pictures of the fleet-