

**CARRIER PIGEONS AS PHOTOGRAPHERS.**

BY THE BERLIN CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

An ingenious apothecary of Cronberg, Germany, as far back as in the forties of the last century, organized a carrier pigeon mail for the conveyance of prescriptions from the surrounding villages to his shop, and the same idea was taken up a few years ago by his son, Dr. Neubronner, who even extended it to the transport of small quantities of medicaments. Now the fact that one of his winged messengers once was delayed unexpectedly, suggested the idea of recording his route by means of photographic views. Dr. Neubronner accordingly provided the pigeon with a miniature camera, effecting by an automatically-opening shutter some very satisfactory photographic views, and this success induced him to design a special photographic apparatus illustrated herewith, which allows up to thirty views of  $1\frac{1}{2}$  inches square to be obtained at very short intervals. The task of constructing an automatic camera with at most 2 inches focal distance, the weight of which, including all accessories, must not exceed  $2\frac{1}{2}$  ounces (the maximum load readily transported by carrier pigeons) evidently was by no means an easy one.

One type of apparatus comprises two self-contained cameras with lenses pointing forward and backward respectively, so as to obtain at least one view of the ground in any position of the pigeon. The two cameras are fitted in a light frame of aluminium, attached by straps and rubber bands to the body of the bird. The shutter is released by a spoon-shaped lever, the cavity of which is thrown outward by a rubber ball filled with air and perforated by a minute opening. As the air escapes, the rubber ball collapses, permitting the lever to disengage the shutter. In the case of another form of apparatus a single lens is used in connection with a film, on which a number of successive exposures are made by a rubber ball and clock mechanism at given intervals of, say, one-half minute.

As a carrier pigeon, after starting, at first describes a spiral line, it is quite easy to take a number of views of a given portion of the ground from different points of view. After once determining the position of its cote (which it recognizes from a distance of upward of 20 miles) the pigeon flies toward its goal in a straight line and at the uniform speed of an express train, so that the route to be recorded photographically can be readily determined in advance.

Photographer pigeons are likely to prove useful primarily for strategical purposes. From besieged places, they allow the positions of the beleaguers to be ascertained, while the latter in a similar manner can obtain information as to the topography of the besieged. Dr. Neubronner has devised for this special purpose transportable dove cotes mounted on a lazy tongs mechanism, whereby they may be raised to afford a suitable launching point for the pigeons. The German military authorities have shown much interest in this matter, inviting the inventor to conduct some experiments in conjunction with the balloon corps at Tegel, near Berlin. Photographer pigeons are likely to be used also in connection with dirigible airships, permitting the latter to remain at a safe distance from the ground, while the pigeons

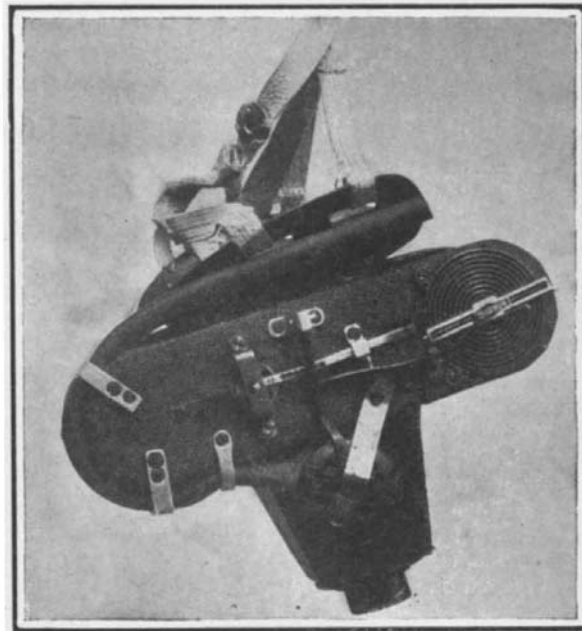
when released will fly near enough to take any photographic views desired.

**The Scientific American in 1909.**

The Editor of the SCIENTIFIC AMERICAN hopes to make the journal even more interesting, if possible, during the year 1909 than it has been in the past. Among the new features will be a series of articles on famous living American inventors, men who have



Portable cote and room.

A  $2\frac{1}{2}$ -ounce apparatus for taking eight pictures.

contributed to the upbuilding of our giant industries. It will be the object to give not only a verbal impression of these inventors as men, but to show in dollars and cents just what they have accomplished by sheer inventive ingenuity. Among the men who will be discussed are Thomas A. Edison, Alexander Graham Bell, James Gayley, John Patterson, and others equally famous.

The Handy Man's Workshop, the new department which was started a few weeks ago, has proved so popular that the Editor will strengthen it, and publish it at frequent intervals during the year.

More than the usual number of astronomical articles will appear during the coming year, because we find that our readers are more than interested in the subject. One of these articles will deal with the remarkable phenomena of the Morehouse comet, which has proved so puzzling to astrophysicists.

Among the special issues to be published one will be devoted to western engineering, in which the government's wonderful work in reclaiming arid lands by irrigation will be fully discussed by able engineers, and likewise the engineering development of Chicago.

**The Junior Aero Club Exhibit at Madison Square Garden.**

The Junior Aero Club, which was organized about a year ago by Miss E. L. Todd, gave its first exhibition at the Toy Show in Madison Square Garden, during Christmas week. The exhibit was a creditable one and showed a great deal of interest on the part of the boys who compose this society. The club has forty members, scattered over the country, and it is, therefore, largely a correspondence organization. The boys get

their ideas from studying the magazines and aeronautic papers. In the recent exhibition there were two model dirigible balloons and nearly a dozen model aeroplanes constructed by them. The latter varied in size from 2 or 3 feet to 7 feet in length. Most of them were fitted with propellers having rubber bands as motive power. The largest model, that made by Percy Pierce, was constructed on the lines of the "June Bug" aeroplane, but it had two propellers running in opposite directions, such as are used on the Wright machine. The same boy exhibited a 15-foot gliding machine of the standard Chanute pattern. The workmanship on both the model and the glider was excellent.

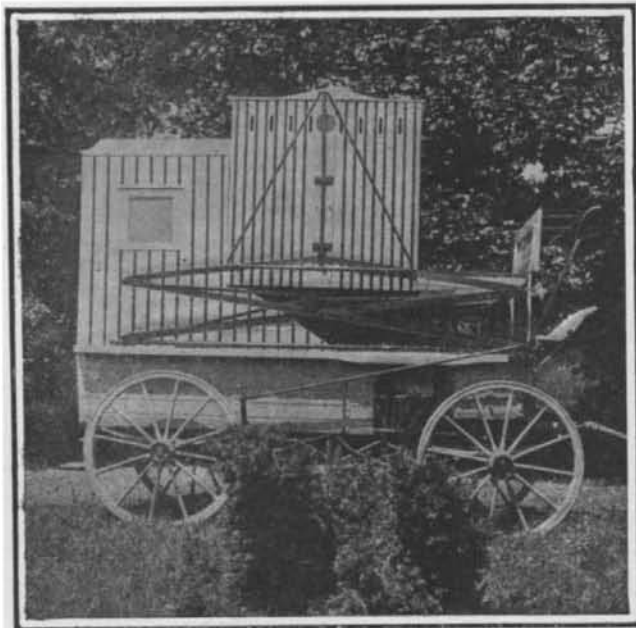
Another interesting model was constructed on the Langley type by Walter B. Phipps, the son of a well-known electrical engineer. This model was provided with a keel running lengthwise below the two following surfaces. It is interesting to note that something of this sort was suggested recently by Octave Chanute, while the same idea was thought of by this twelve-year-old boy.

One of the most complete Wright-type models was fitted with a half-horse-power steam engine and flash boiler, the whole power plant weighing but  $2\frac{1}{2}$  pounds. The model was built by Walter Wittman, and the engine by his elder brother. This machine, it is believed, will make a much longer flight than the models propelled by rubber bands.

There were a number of other interesting exhibits in the shape of odd kites, one of which, constructed by the late Henry Rodemeyer, had a peculiar bird-like shape. There were also two tetrahedral cell kites, one of which was furnished by Dr. Bell, and the other of which was constructed by one of the boys. A wireless telegraph apparatus constructed and operated by boys was also exhibited. This apparatus was designed by W. E. D. Stokes, a twelve-year-old boy, who has a 5-kilowatt long-distance wireless station on top of the Ansonia Apartments in New York city.

The exhibit was completed by some excellent photographs showing the chief dirigible balloons and aeroplanes. There were also a number of drawings of aeroplanes submitted by members of the club. The noticeable thing about these designs was that there were few of them freakish, but that they all followed the lines of standard machines. There was also a full-sized foot-propelled wind wagon and several small spring-driven models of this form of propeller-testing machine.

Wernecke has patented a continuous automatic filter press divided into several compartments, which are arranged radially about a horizontal axis, forming a polyhedral box. The outer end of each compartment is closed by a hinged and grooved plate covered with filter cloth. The inner end is of similar construction, and can be forced outward by a lever. The compartments are filled through pipes connected with one end of the hollow axis, and emptied through pipes connected with the other end. The operations of filling, pressing, and emptying are performed automatically as the apparatus is rotated. As each compartment arrives at its lowest position the outer end is opened and the press cake is expelled.



Portable, collapsible cote for military use.



Carrier pigeon equipped with a two-lens camera.



Magnified picture taken by a carrier pigeon.

**A NOVEL USE FOR CARRIER PIGEONS.**