is about 140 feet and the excavation will be 180 feet deep after the coal is removed. The detrital surface material is about 12 feet thick and the rest of the cover is rock. The total excavation of cover (surface and rock) to date is a little over 3,000,000 cubic yards, which has laid bare about 1,700,000 tons of coal.

The "Gamma" and "Buck Mountain" beds of coal are mined by underground methods, under the area covered by this stripping, as their depth is too great to make stripping them practicable.

The method of mining the coal in the strippings consists of blasting the coal in large sections by gangs of men working ahead of the steam-shovel, which then loads it into mine cars brought to the shovel by little "mine-lokeys." The shovel is able to load about 500 mine cars of three and one half tons capacity each in a working day. After the trip of cars is loaded the lokey hauls them to the foot of the hoisting plane, where they are

hoisted two at a time to the surface. They are then hauled by larger locomotives in trips of about twenty cars each to the breaker, about three and a half miles away. This "breaker" handles all the coal from the Drifton colliery, which includes four underground mines besides the stripping.

The method of blasting coal in advance of the steam-shovel is of interest. A series of holes is drilled, usually by steam drills, from the surface of the exposed coal through to bed rock. At the bottom of each hole a charge of dynamite, called a "leader-blast," is exploded. This does not break up the coal strata, but shatters a small pocket of coal at the bottom of each hole. Each hole is then filled with water and a small charge of dynamite is sunk through the resulting mass of fine coal and water to the bottom of the hole. This charge is then exploded, which "cleans" the hole, throwing out all the coal dirt with the water. The enlarged cavities at the bottom of

each hole (and against the bed rocks) are then filled with black powder. Several of these holes are then fired simultaneously, the result being that the entire area of coal is "loosened up" ready for the steam-shovel. In a single blast made recently at the Drifton stripping eleven holes were bored and twenty-five sticks of 40 per cent dynamite exploded in each hole as a "leader blast." In the resulting cavities from ten to fifteen kegs of black powder were placed in each hole, and the eleven holes fired together. The resulting explosion "brought down" six thousand mine-carloads of coal, or approximately 21,000 tons.

One great advantage of this method of blasting is that while breaking up the coal sufficiently for convenient handling by the steam-shovel, it reduces to a minimum the percentage of fine sizes. There is very little "dirt" produced and a very large proportion of the coal goes to the breaker in large lumps.

Bird Calling*

An Attractive Art for Lovers of Nature

By W. A. Nicholson

THE art of attracting wild birds is one little known or understood except by those whose special interest lies in this direction. The bird-catchers, and those who trade in live birds, understand little, if anything, about this subject, and even the bird-catchers themselves seldom practise it, relying almost solely upon

of various patterns in my possession, that I make use of regularly, there is quite a collection of different kinds, a total of eighteen being here represented. It is at all times advisable to procure the very best that are made, for the simple reason that with care they give the finest results and will last for many years.

little heed to artificial calls, and at such times it is useless trying to attract them. Another easily duped species is the cuckoo, which may be enticed to within a few feet of the manipulator, and the same may be mentioned of the golden plover (see Fig. 1), partridge (see Fig. 8), pheasant (see Fig. 16), and little grebe

Fig. 1.—Golden Plover. Fig. 2.—Curlew. Fig. 3.—Green Plover. Fig. 4.—Owl. Fig. 5.—Wild Duck. Fig. 6.—Hare. Fig. 7.—Hare.

Fig. 8.—Partridge. Fig. 9.—Teal. Fig. 10.—Snipe. Fig. 11.—Blackbird.

the live decoys shut up in small cages wherewith to attract their wild companions to the deadly limed twigs. One must be well versed and possess a thorough knowledge of the notes emitted by birds, besides being acquainted with their habits, before he can employ the aid of calls with success, and the professional bird-catcher is an individual of too indolent a character for this work, which, doubtless, is the principal reason he leaves it severely alone. Those who use bird-calls regularly are the bird-photographer, the field naturalist and the wild-fowler, and all with the one object and main purpose of decoying the species and making them come nearer, the first, to enable him to secure a good negative and larger picture; the second, to extend his knowledge of the habits of a species; and the third, to secure the specimen. The wild-fowler, however, makes use of few calls, often not more than six, these usually being those imitating the cry of the wild duck (mallard—see Fig. 5), curlew (see Fig. 2), golden plover (see Fig. 1), green plover (see Fig. 3), wigeon and teal (see Figs. 18, 15 and 9), and often two only are regularly carried, these being the calls of the golden plover and curlew. As will be observed from the illustrations which have been reproduced from photographs

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As remarked above, the successful use of these calls chiefly depends upon the operator and his practical knowledge of the proper notes emitted by the birds in a wild state, and without experience of the latter it will be only time wasted to endeavor to manipulate them, except, perhaps, with the exception of two of the instruments, namely, that of the wood-pigeon (see Fig. 17) and the golden plover (see Fig. 1). These two are the simplest to operate and little practice is necessary to enable one to make successful use of them. The wood pigeon call may also be substituted for that of the cuckoo, and a little practice with it soon enables one to acquire the correct pitch and modulation of sound necessary. It is very interesting to visit a breeding haunt of the wood pigeon with one of these calls. My method is to conceal myself (I use a hiding tent for this purpose, which is furnished with tapes, to which I attach twigs, grass, and so on, and make use of the surrounding undergrowth to screen it) under the nesting trees, having previously arranged my camera in position, and send out a few notes. As generally happens, the cubs in the immediate neighborhood are cooing all around, and, at first, little or no notice is taken by the birds of one's efforts, but the secret is to continue to call, not, however, uninterruptedly, but with pauses of about four minutes, making a fairly high pitch in the tone, when the birds will be observed to crane their necks downward and stop cooing. Some bolder than others fly closer to the hidden caller, often approaching to within a few yards, and altogether the call, always assuming the proper sounds are given, has a most alluring effect on wood pigeons during the commencement of one of their breeding periods. During incubation, however, the birds pay

(dabchick). Species somewhat more difficult to deal with are the wild duck (mallard—see Fig. 5), curlew (see Fig. 2), snipe (see Fig. 10), owl (see Fig. 4), wigeon (see Fig. 18), magpie (see Fig. 12), oyster-catcher, and red-throated diver. All the calls illustrated should be worked with the left hand, so as to leave the right hand free for manipulating the shutter of the camera and other necessary items.

The art of bird-calling here briefly illustrated is a most interesting study, possessing a peculiar charm, a charm impossible to describe, and one having a fondness for ornithological pursuits, and with plenty of time to spare, could hardly do better than take up so absorbing a hobby, the acquisition of which would repay him a thousandfold. But such a one must be possessed of great patience and perseverance, otherwise failure is certain.

Correction

In an article entitled "Cellar Space Made Available by the Use of Prismatic Glass." (Supplement Aug. 16, 1913, p. 107.) certain dimensions were mistated owing to an unfortunate printer's error. In the fifth paragraph of the second column the dimensions of the areaway should be 4x4 feet and in the 10th paragraph 2 inches from the ceiling, and 2 to 2½ inches from the floor should be the same number of feet in each case.

Fig. 12.—Magpie. Fig. 13.—Rabbit. Fig. 14.—Jay.

Fig. 15.—Wigeon (improved pattern.)

Fig. 16.—Pheasant. Fig. 17.—Woodpigeon. Fig. 18.—Wigeon.