Then, $G = \text{antilog } [(\Sigma \log s + n_o \log G_r)/n]$ [Eq. 2].

Properly we should use some figure less than G_r, say $G_r - a$. Then Eq. 2 becomes:

$$G' = \text{antilog } \{[\Sigma \log s + n_o \log (G_r - a)]/n\} \quad \text{[Eq. 3]}$$

The relation between [Eq. 2] and [Eq. 3] is given by the equation $G/G' = (G/G_r - a) \exp n_o/n$. It is obvious that the left hand side approaches unity as a approaches zero. However, if a value less than G_r is used in [Eq. 2] the value of G is diminished and yet the chances are that, using G_r, G comes out less than its true value, so the best solution is to use G_r. This also avoids an arbitrary assumption of a value for a.

I give three illustrations of the results of computing lengths of stay for Lincoln, Massachusetts. In the falls of 1946-1948, 279 Slate-colored Juncos appear to have departed on or before 20 Dec. For these birds G_r was 3.2 days and G was 3.7 days. In this case, if we assume $G_r - a$ to be 2.7 days, G becomes 3.3 days. For the same species there were 135 examples appearing on or after 1 Mar. in the springs of 1947-1949. These showed a G_r of 2.2 days and a G of 2.5 days. Similarly, for the same springs, a rather small Eastern Fox Sparrow sample of 40 birds shows $G_r = 0.9$ days and $G = 1.1$ days. At all events, one can say that qualitatively these figures agree with what one sees just by watching the relative numbers of banded and unbanded birds each day.

From Borror's (1948) Figure 1 for White-throated Sparrows at Columbus, Ohio, in the fall of 1946, I find $G_r = 2.8$ days and $G = 4.4$ days.

That there can be a great discrepancy between occurrence and trapping is well shown by a color-banded Junco (46-73017) which was seen, as a return, 9 Jan. 1949, again 11, 14, 18 Jan. It was trapped once 29 Mar., and seen finally 31 Mar. It is probably a bird of exceptional wisdom. It remains to be seen how frequent such cases are.

Although we cannot say what the precision of these figures may be, they have the merit of being arrived at by a definite and repeatable method. There is, therefore, a basis for comparison with any other figures obtained by the same method. Mean length of stay can be used in estimating the number of migrants passing a given point and the velocity of migration.

LITERATURE CITED

Blake, C. H.
1948. The spacing of repeats. *Bird-Banding*, 19(4): 156-159.

Borror, D. J.
1948. Analysis of repeat records of banded white-throated sparrows. *Ecol. Monogr.*, 18(3): 411-430, 4 figs.

Massachusetts Institute of Technology, Cambridge, Massachusetts.

GENERAL NOTES

Adapting Pliers for Closing Aluminum Bird Bands. The softness and flexibility of the numbered aluminum bands used for banding birds enables one often to apply them by squeezing the bands with the fingers. Close inspection of bands applied in this manner often shows that the band is poorly adjusted and on this account injury to the bird can occur. Many banders use pliers of various designs to make the final adjustment, but in so doing the band can easily be overlapped. This makes it necessary to remove the band, reform it on some

round rod of the proper size and then repeat the process of applying the band correctly.

Kennard (1929) described and illustrated a small pliers which was admirably adapted for closing the aluminum bands. In recent years the Kennard pliers have not been available.

One of the suppliers of commercial bands and tags offers a pliers adapted for opening and closing bands, however, the pliers furnished are clumsy and the closing hole in the pliers sent to the writer is elliptical instead of round.

As many of the bird-banders either have a small home-shop drill press, or one of his neighbors is so equipped, it is possible for most banders to adapt a number of pliers with holes suitable for the band sizes most frequently used. A pair of pliers that have been adapted to close a No. 2 band so that the ends butt firmly together is shown in Fig. 1 (A).

Most of the pliers on the market today are designed for special purposes with the result that suitable pliers for the bird-bander are not always easy to obtain. The size should be 4 or 4½ inches long with a medium length nose which has jaws sufficiently thick to have the required strength after the hole is added.

The writer adapted several small 4½ inch pliers, by grinding a 7/32 inch hole, to close the No. 2 band. The hole should not be larger but it can be a few thousandths of an inch smaller.

It is not practical to soften the hard steel nose of the pliers so that the hole can be drilled. To do so would warp the hinge and make the operation unsatisfactory. The easiest way to make the hole is to grind it into the hard jaws with a small grinding wheel of about 1/4 inch diameter for the No. 2 band. The wheel should be mounted on a shank so it can be used in the drill press chuck, Fig. 1 (B). Most hardware stores carry grinding wheels of this type or they can be procured on order.

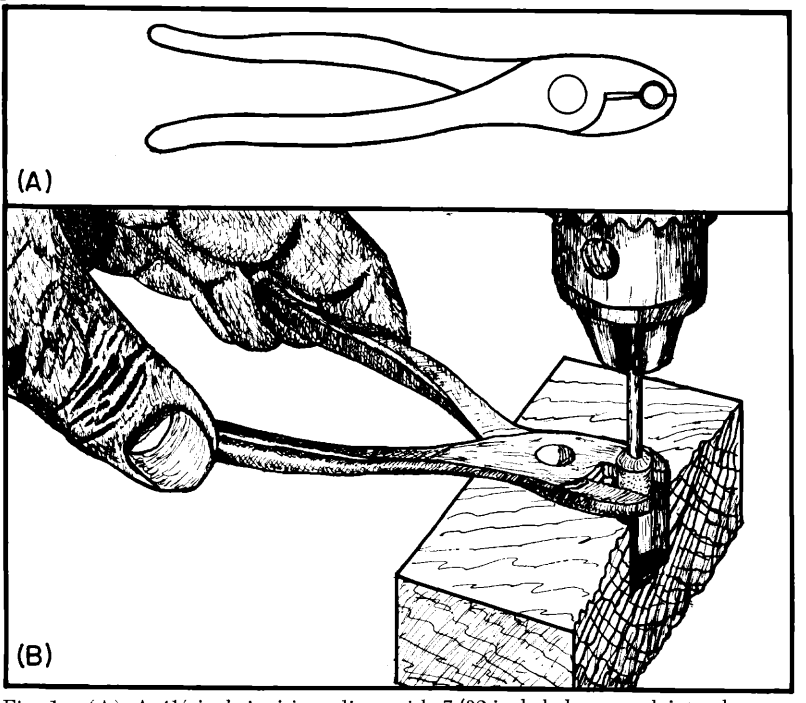

Fig. 1. (A) A 4½-inch ignition pliers with 7/32-inch hole ground into the nose for forming a No. 2 band when placed on a bird's leg. A band is shown in the hole with the ends properly butted together. (B) Sketch showing manner of grinding the hole into the nose of the pliers on a drill press by the use of a small grinding wheel. A light pressure on the plier handles controls the rate of grinding.

The grinding must be done in water. The writer found that the work can be done satisfactorily by using a small hardwood block about 1¾ x 3 x 4 inches with a ⅜ inch hole drilled an inch from an edge and ¾ inch deep. Place the block in a small photographic tray to prevent wetting the machine. The hole in the block is filled with water until the overflow forms a puddle an inch in diameter around the hole. Adjust the position of the block so that it has a clearance of about 1/32 inch below the wheel. While the wheel is rotating about 750 R.P.M. bring the jaws of the pliers into the correct position and lightly close the jaws onto the rotating wheel. The metal will be removed to make a cylindrical hole. The location of the hole should be far enough from the point of the pliers so that the periphery will not reach the point but it will leave a suitable bearing surface of about 1/16 inch in width. During grinding the drill spindle should be raised and lowered to keep the hole cylindrical and maintain an even wear of the wheel. The size of the wheel will be reduced rather rapidly so that the diameter obtained when the jaws meet will be considerably less than the initial diameter of the wheel. If the wear is too fast the hole will be too small and a slightly larger wheel will be required to complete the work. If the wheel does not wear fast enough the hole will be too large, hence one must make frequent checks on the diameter of the grinding wheel or of the hole in order to finish with a hole of the required size. It is important to keep the wheel running in a puddle of water, otherwise the metal will burn or the wheel will become glazed with steel particles.

For the various sized bands one would have to select suitable wheels at the beginning and check the work as it progresses. Wheels used initially for large holes can be used later for smaller ones. The sharp edge of the hole on the inside of the jaws should be slightly rounded to avoid marking the bands.

LITERATURE CITED

KENNARD, FREDERIC H.
1929. Pliers for Bird Banding. *Bull. Northeastern Bird-Banding Assoc.*, Vol. V, pp. 105-108.

B. M. Shaub, 159 Elm St., Northampton, Massachusetts.

The voice of *Nyctibius griseus*.—Little has been published about the call-notes of the neotropical caprimulgiform Nyctibiidae, or Potoos. The northernmost of the continental forms, *Nyctibius griseus mexicanus* Nelson, ranges in western Mexico as far north as Sinaloa (Peters, 1940, *Check-List of Birds of the World*, 4: 180), and in eastern Mexico at least to the Sabinas valley in southwestern Tamaulipas. Here I have seen and heard it repeatedly.

My first meeting with the bird was at nightfall on March 17, 1941 (Sutton and Pettingill, 1942, *Auk*, 59: 16). That evening I had been hunting along a well-defined trail through the wild pineapple thicket. In the gathering dusk I continued to hear a strange, loud, not at all birdlike, cry. Listening carefully, I decided that the sound was coming not from a trail or clearing but from the thicket itself. The rough-voiced *wow* or *baw* was repeated at intervals of about twenty seconds. It continued to be a single note, but its volume had increased somewhat by the tenth or twelfth repetition. I cautiously approached the sound, which seemed to stop while I was moving, but to start again whenever I stood still. At length, off in the woods, I saw a dark spot about 15 feet above the ground on what must have been a leafless branch. The spot moved a little as the queer *wow* sounded. Aiming carefully, I shot, and the dark spot fell. I was amazed when I picked up a Potoo, a species I had not dreamed of collecting in that region.

In April, 1941 we encountered *Nyctibius griseus* frequently, usually in the late evening or at night. We collected three more specimens (April 8, 11 and 13). Knowing that the species lived about us, we attributed to it various "rough squawks, screams and hoots" heard from time to time along the river or on the foothill just to the west. The cries I actually saw it give in April I described in my notes as 'queer,' 'owl-like,' and 'grating,' but part of my entry for March 17 reads: "Cry a wild '*wow*'—rough and terrifying. Sounds big enough for a great cat."

I have described the cry of *Nyctibius* as a "genuinely terrifying sound, like the bawling of an angry bear" (1945, *Audubon Magazine*, 47: 39). This comparison