

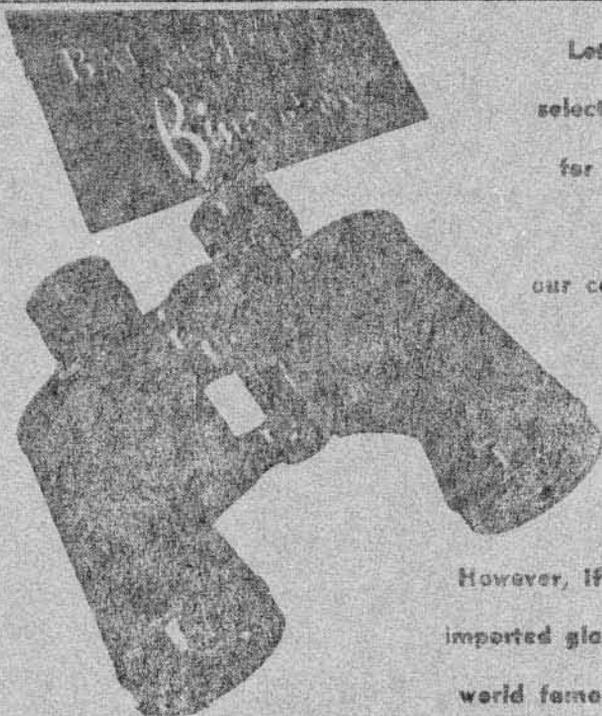
THE MIGRANT

A QUARTERLY JOURNAL
DEVOTED TO TENNESSEE BIRDS

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THE TENNESSEE
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DECEMBER
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THE MIGRANT

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NO. 4

BIRD CASUALTIES AT A NASHVILLE T-V TOWER

By ALBERT F. GANIER

Mass casualties of birds migrating at night in the autumn season have been the subject of a number of articles in past issues of this journal. Such casualties have occurred at airport ceilometer beams, television towers and to a lesser extent at buildings. We may assume too that such casualties occur at the steel bridges which cross our rivers, such as the several that span the Mississippi and the Tennessee.

Our earliest "bird-falls" at Nashville occurred at ceilometer beams located at airports, the attraction being less the narrow light-beam itself but rather the mushroom canopy of light formed on the underside of low clouds above, i. e. the "ceiling". To this, southbound birds converged in their flight. I have heretofore (1954) expressed the belief that the flying birds, circling and descending the light beam, to a point where "many low-flying ones which fly thru the beam are temporarily blinded and, losing their sense of direction and altitude, strike the pavement before they know they are close to the ground." Fortunately, it has been found that turning off the light temporarily or placing over it a proper shield to obscure its white rays, thru the cooperation of the weather bureau personnel, has relieved the hazard. They report no casualties in several years. On another page in this issue however will be found a description of a disastrous bird-fall in west Texas where such precautions had not been put in effect and which on 6 October, caused the death of about 6,000 birds.

As television towers came in and rose to unprecedented heights, they became a great menace to nocturnal migrants. Our W.S.M. tower, for example, located on a high hill-top and rising to a great height, scrapes with its apex light the underside of a low cloud ceiling reported by our weather bureau as 1,400 feet above the ground. In form, the towers can be described as resembling a skeletonized needle, they being formed of light structural steel members. They are triangular in cross-section, each side measuring 12 feet in length and decreasing toward the top. The W.S.M. tower is located 5 miles west of Nashville court house in suburban territory and overlooks the wide Cumberland river bottoms. Its total height is 1,369 feet above its foundations and this includes a 116 foot high tubular antenna at the top. The sea-level elevation of the river bottoms is 400 feet, the hilltop tower site is 680 and the apex of the "needle" (the tower) is 2,050. The weather bureau site is 600. The tower is kept erect by three sets of guy cables, attached to each of the three corners, at 400, 800 and 1,250 feet heights. Each set of cables consists of a pair, thus 18 cables extend far outward to anchors in the ground, the longest being 1,650 feet. The tower and these cables are the obstructions the birds strike before falling.

The birds are attracted to the tower because of 10 sets of red lights, spaced equally from about 100 feet above the base to the extreme top. Five sets of these are flasher lights or "blinkers". These lights are easily visible from points several miles away but create no perceptible general illumination. It would seem that the color of the light and the apparent aliveness of the blinkers has a particular attraction for birds and this has been the conclusion also reached by Cochran and Graber (*Wilson Bulletin*, 1958, 70:378-380.). For comparison, a series of powerful elevated spotlights in the L. and N. RR switching yard, has not as yet attracted nocturnal migrants. From what distance the birds funnel in to such towers it would not be possible to say but we can assume the attraction would diminish progressively out to two or three miles each way. The lights are of course necessary for the protection of passing planes.

With this picture of the situation in mind, what follows will be a report on three bird-falls, occurring 5-6 Sept., 5-6 Oct. and 16-17 Oct, 1962. Double dates are used, assuming that casualties occurred both before and after midnight. The total numbers recovered were 135 (22 species), 167 (16 species) and 34 (18 species), respectively. Compared with similar casualties in the past, the numbers are not large but from each such occurrence we learn many details of interest, some of which are surprising even to experienced observers. The 1962 dates are of special interest in that the first represents an early migration date, the next a date well after the assumed peak and the last, a late date. On the last date, the sky was clear. The birds were picked up by H. E. Parmer and the writer and were found at from 75 feet north of the tower to 200 feet southward. Search further out under the cables yielded nothing.

The list of 39 species and the numbers of each recovered is given below, the numbers being listed in order for 5-6 Sept., 5-6 Oct. and 16-17 Oct.

Least Bittern	1-0-0	Ovenbird	17-6-2
Yellow-billed Cuckoo	1-0-0	Kentucky Warbler	13-0-0
Yellow-bellied Flycatcher	1-0-0	Mourning Warbler	0-0-1
Wood Peewee	0-0-1	Yellowthroat	0-1-1
Brown Creeper	0-0-3	Yellow-breasted Chat	12-0-0
Catbird	0-2-0	Wilson's Warbler	0-2-0
Golden-crowned Kinglet	0-0-2	Canada Warbler	5-6-0
Ruby-crowned Kinglet	0-0-1	Amer. Redstart	5-1-0
Yellow-throated Vireo	0-1-0	Tennessee Warbler	4-86-9
Red-eyes Vireo	15-16-0	Nashville Warbler	0-0-1
Philadelphia Vireo	0-2-1	Yellow Warbler	5-0-0
Black-&-white Warbler	23-1-0	Magnolia Warbler	22-14-3
Prothonotary Warbler	1-0-0	Myrtle Warbler	0-0-1
Golden-wing Warbler	1-0-0	Black-thr. Green Warbler	1-6-2
Cerulean Warbler	1-0-0	Bobolink	0-2-0
Blackburnian Warbler	3-1-0	Baltimore Oriole	1-0-0
Chestnut-sided Warbler	1-0-2	Rose-breasted Grosbeak	0-0-1
Bay-breasted Warbler	0-22-1	Indigo Bunting	0-0-1
Blackpoll Warbler	1-0-0	Dickcissel	1-0-0
Palm Warbler	0-5-2	and 2 Red Bats on 5-6 Oct.	

The most interesting of the above were the Bobolink and the Mourning Warbler, both rare fall transients here, and the Blackpoll Warbler which is our fourth fall record for this species. The bats, a migra-

tory species, must have been half asleep and inattentive. After 5 Sept., Parmer visited the tower nearly every morning that followed a cloudy night up to 7 Nov. and on 7 mornings, picked up an additional 18 birds.

We have come to look for such bird-falls on nights when a cold front is approaching with northerly winds, when there is a low ceiling of 2,000' or thereabout and when light rain or foggy conditions exist. 5-6 Sept. conformed to these conditions. It should not be assumed that migration waves are dependent on these combinations for in the past we have found, from telescopic observations of birds passing across the full moon, that birds migrate in clear weather too.

Since weather conditions are involved so strongly in these bird-falls, the following data was secured from the local weather bureau.

Hour	Sept. 5-6			Oct. 5-6			Oct. 17-18		
	Ceil.	Temp	Wind	Ceil.	Temp	Wind	Ceil.	Temp	Wind
6 p.m.	1300	68	10 NNE	12000	74	5 SW	Clear	64	5 N
8 p.m.	1300	66	10 NNE	7000	70	4 S	Clear	59	6 N
9 p.m.	3000	65	10 NNE	10000	68	0	Clear	57	6 N
10 p.m.	3500	65	10 NNE	10000	68	0	Clear	56	5 N
11 p.m.	3900	65	10 NNE	clear	67	6 S	Clear	55	5 N
12 p.m.	3900	64	10 NNE	10000	66	2 S	Clear	55	5 NNE
1 a.m.	12000	63	10 NNE	5500	66	0	Clear	52	2 N
2 a.m.	12000	61	10 NNE	6000	67	4 S	Clear	52	0

It will be noted that temperatures were not "cold", that on 5-6 Oct. there were no northerly winds and that low ceilings occurred only on 5-6 Sept. We do not know at what hours the birds fell.

The specimens were kept frozen and were passed around to several of our members for study of plumage, etc. A few were made up by the writer for study skins but the profuse fat, which quickly turns to oil, makes production of good skins quite difficult. A considerable area of concrete paving on the south side of the tower probably killed many birds that might have recovered had they fallen on grassy areas.

At the recent meeting of the Kentucky Ornithological Society, Floyd Carpenter of Louisville told me of a bird-fall that had occurred at the village of Magnolia, Ky., which is 100 miles NNE of Nashville. On the morning of 27 Sept., 270 small passerine birds of 30 species were picked up over a four acre area following a foggy night. The birds had apparently struck buildings, poles and wires since neither ceilometer beams nor television towers were present.

Lack of space prevents appending a bibliography of articles pertinent to this subject but more of these have appeared in THE MIGRANT than in any other American publication. The reader is referred to the Contents Index which appears on the last pages of each December issue.

2112 Woodlawn Dr., Nashville, Tenn.

A TEXAS BIRD-FALL. — From the Nov. 1962 News-Letter of the Texas Ornith. Society, we learn that on or about 4 Oct., 1962, at around 3 a. m., "6,000 or more birds flew into the Laughlin Air Base (at San Angelo, 200 miles N-W of San Antonio). At least 6,000 were killed and many of them, especially the Mourning Doves, had hit the concrete head and breast first as proved by examination of the birds. There were a total of 24 species represented and of the total kill, 4,200 were doves. Among

other species were a Poor-will, a White-necked Raven, grebes, plover, blackbirds, orioles, warblers, Dickcissels and other small birds. On this night, there was a very heavy cloud overhead and the 3,000,000 candle-power ceilometer beam that is used to determine the ceiling was turned on. When its rays, including some infra-red rays, hit the cloud bank, they bounced back and brilliantly illuminated the airfield. The cloud kept getting lower than its original height of about 2,500 feet. The birds were not only attracted by the light but became confused as to which way was up and which way was down. Dr. Davis of A. and M. College thinks the infra-red rays had a lot to do with "confusing the birds". The account further states that a "norther" was heading south across Texas at the time.

THE STATUS OF WILD TURKEYS IN TENNESSEE

JAMES C. LEWIS*

In March, 1962, a statewide survey of occupied range and wild turkey populations was completed. This survey and one made in 1959 showed major changes in the distribution of Tennessee's wild turkey flocks (Table 1) since the 1951 survey reported by Shultz (1955).**

The information contained within this report is a population estimate by officers, area game managers, and district biologists of the Tennessee Game And Fish Commission. Estimates are based on their personal observations and reports of cooperators.

Fifty-seven Tennessee counties reportedly contained wild turkeys in 1951. By 1962, only 23 of the original 57 were still occupied. However, ten counties had been restocked using wild trapped turkeys, making a total of 33 counties containing turkeys in 1962 (Figure 1). The greatest occupied range losses, of eleven and seven counties respectively, occurred in the Highland Rim and Cumberland Plateau Physiographic Divisions.

These occupied range losses were apparently coincident with human population growth and changes in land use which remnant flocks were unable to cope with.

Fifty-seven per cent of Tennessee's wild turkeys and 34 per cent of the occupied acreage is within the boundaries of the Tennessee Game and Fish Commission's wildlife management areas.

No population or occupied acreage estimates were available for the 1951 survey. However, in the past three years the estimated statewide population has increased by approximately 500 birds, to a total of 3,700 turkeys. The 1959 occupied acreage was reported to be 1,219 square miles. In 1962 the estimated occupied acreage had increased to 1,804 square miles. The greatest flock numbers and range acreage are found in the Unaka, Cumberland Plateau, and Mississippi Bottomland Physiographic Divisions.

At the present time turkey hunting is restricted to a gobblers-only season in April and May. Approximately 150 turkeys are harvested annually. Tennessee Ornithological Society members will find it easiest to observe wild turkeys and hear gobbling on Ocoee, Shelby, Catoosa, Fall Creek Falls or Central Peninsula Wildlife Management Areas.

* This paper is a contribution of Federal Aid to Wildlife Management, Pittman-Robertson Project W-35-R Tennessee.

** Schultz, V. L. 1955. Status of the wild turkey in Tennessee. *The Migrant* 26 (1):1-8.

Tennessee Game And Fish Commission, Crossville.

Table 1. Tennessee Counties Containing Wild Turkeys Within the Various Physiographic Divisions

Physiographic Divisions	1951		1959		1962	
	Original	Restored	Original	Restored	Original	Restored
Unaka	8	0	6	0	6	1
Cumberland Plateau	18	0	11	0	11	0
Highland Rim	17	3	5	3	3	3
W. Tennessee Plateau	3	3	0	3	0	3
Mississippi Bottomland	4	1	2	1	2	1
Valley of E. Tennessee	7	2	0	2	1	2
	57	9	23	9	23	10
Total			32		33	

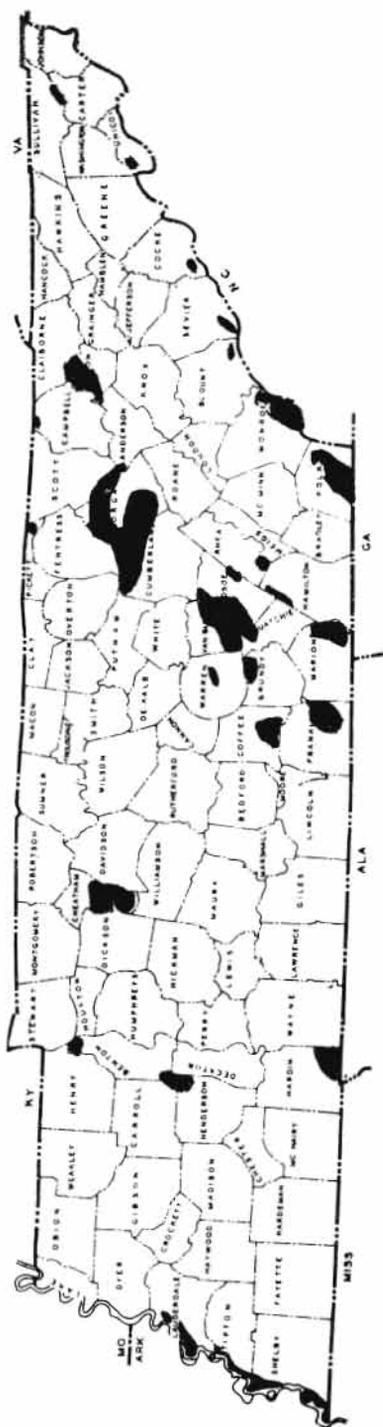


Figure 1. Occupied Wild Turkey Range in Tennessee, 1962.

THE 1962 CHRISTMAS SEASON BIRD COUNTS

By T.O.S. Members

The thirty-second annual Christmas Bird Count tabulated in THE MIGRANT lists 116 species and subspecies. The number has been exceeded on five counts and tied with one other, all within the past twelve years. The tabulated counts are from thirteen areas and four additional counts were confined to high altitudes (approximately 2,700' to 6,600') only and are presented in paragraph form under the appropriate heading for the location. Three of the high altitude counts were made by Fred W. Behrend, alone. No species was reported on these counts that was not reported elsewhere. The Great Smoky Mountain count includes both high and low altitudes.

Only the Orange-crowned Warbler occurs in the list for the first time, bringing the grand total of species and subspecies to 163 for the thirty-two consecutive annual counts.

A comparison of abundance of a few species on the 1959 count and the current count is of interest because of the protracted snow and cold weather during February and March of 1960 when these species were reported greatly decimated. Phoebe was down 41%, Carolina Wren down 44%, Hermit Thrush up 84%, Bluebird down 42% and Myrtle Warbler down 68%. The extremely cold weather in mid-December, bringing sub-zero temperatures state wide may have been responsible for the smaller numbers of some species this year. Red-headed Woodpeckers, Brown Thrashers and Rusty Blackbirds appear to be becoming more widely distributed than in recent years, having been reported from eight to ten localities this year compared to two to four localities as recently as 1957.

Only fourteen species occur on all of the lists while nine other species are absent from only one of the tabulated lists. Twenty-one species were reported from only one locality while the following seven species were represented by a single individual: Black-crowned Night Heron, Rough-legged Hawk, Am. Woodcock, Pine Warbler, Tree Sparrow, Harris' Sparrow and Lincoln's Sparrow.

Information on the counts and listing of the counts in the table are progressively from west to east. The four high altitude counts are included in paragraph form under the appropriate area heading because of the small numbers represented.

INFORMATION ON THE COUNTS

MEMPHIS. — 1953 areas less some bottoms; plus Mud Island; wooded bottomlands 30%, deciduous woods, city parks 25%, pastures 19%, suburban roadsides 24%, river edge 2%. Dec. 23; 7 a. m. to 5 p. m. Fair; temp. 37-43, wind 14-23 N. 19 observers in 6 parties. Total party-hours 74 (56 on foot, 18 by car); total party-miles 176 (52 on foot, 124 by car). Orange-crowned Warbler (3 singles, RH, BC, GP separately) 1st Count record; Pine Warbler (Mrs. AIS & Mrs. JHMW). Mr. and Mrs. Ben B. Coffey, Jr., Draw Anderson, Mrs. Ed Carpenter, Mary Davant, Mrs. Henry Dinkelspiel, John H. Embury, Earl Fuller, Royce Hough, Edward M. King, Charles McPherson, Mrs. J. H. McWhorter, Nelle Moore, George Peyton, Jr., Mrs. Henry A. Schiller, Alice Smith, Dr. and Mrs. Arlo I. Smith, Lynn Smith. Also Mrs. Chas. Seahorn and Mrs. Paul C. Owen in their yards.

REELFOOT LAKE. — All points within 15 mile diameter circle, center Reelfoot Lake; lake 20%, marsh 5%, deciduous woods 45%, fields and farms 18% and roadsides 12%. Dec. 28; 7:30 a. m. to 4:30 p. m. Overcast, rain in p. m.; temp. 22° to 30°; wind E 2-3 m.p.h.; 8 observers in 3 parties. Total party-hours, 25 (10 on foot, 8 by car and 7 by boat); total party-miles, 183 (12 on foot, 163 by car and 8 by boat). Seen in area count period but not on count day: Redhead Duck, Robin. Evelyn Cole, John R. Conder (compiler), John L. Delime, W. Fickel, Willard Gray, W. L. Hall, Jr., Hunter M. Hancock and Clell T. Peterson.

NASHVILLE. — Approx. same area as in past 12 years; area of a 15 mile diam. circle centering on Harding 7 miles W. of Nashville. Included were Radnor and Bush's lakes, deciduous wooded hills, 40%; open fields and pastures, 25%; river-bottom fields, 20%; roadsides and suburban yards including 15 feeding stations, 15%. Dec. 29, 6:30 a. m. to 4:30 p. m. Temp. 49 declining to 36 degrees; wind light in a. m.; 12 m.p.h. in p. m.; drizzling rain and foggy in a. m., cloudy p. m.; visibility poor. 30 observers in 8 parties. Party-hours 96 (44 on foot, 22 by car, 30 watching feeders). Party-miles 172 (33 on foot, 139 by car). Total 70 species, (below par, due to weather); 2,506,440 individuals of which 2,500,000 were estimated at a roost. All Grackles, Cowbirds and Redwings listed, consisted of one flock of each. The 7 Brewer's Blackbirds (A.F.G. et al) were in a stock feeding lot. Only 1 duck at Radnor. Gulls and Pipits were on or about Bush's lake. 8 parties including 38 observers as follows: Mr. and Mrs. B. H. Abernathy, Anne Arnette, O. C. Ault, Mrs. William and Susan Bell, Ruth Castles, Mrs. Ovid Collins, Annella Creech, D. J. and Fairman Cumming, Milbrey Dugger, J. O. Ellis, Chas. Farrell, Albert F. Ganier (Compiler), Katherine Goodpasture, Mr. and Mrs. Paul W. Green, Virginia Hagan, Mr. and Mrs. John Herbert, Will Hon, J. P. Jones, Geo. R. Mayfield, Jr., Marguerite McKinney, James Parrish, H. E. Parmer, Mr. and Mrs. W. A. Puryear, Jennie Riggs, Mr. and Mrs. Eugene Ruhr, Mr. and Mrs. Robt. Sharp, Mr. and Mrs. Kirby Stringer, Lawrence and Larry Trabue, Jesse E. Wills. Mrs. Stringer compiled a list of 37 species observed by other members watching their feeding stations and home grounds. They were Mrs. Mark Bradford, Jr., Mrs. Bernard Britt, Merrill Carter, Mrs. K. B. Everly, Mrs. R. E. Faitoute, Mr. and Mrs. Wm. E. Fentress, Mrs. W. C. Finch, Mary Frazer, Mr. and Mrs. Hugh L. Fry, Mrs. H. G. Knauth, W. A. Puryear and Mr. and Mrs. Max Schuerman.

COLUMBIA. — Area center at Zion Church SW of Columbia, includes Columbia, Mt. Pleasant and Hampshire. Dec. 26, dawn to dusk; cloudy with some snow remaining on the ground. Temp. 25° to 50°; wind W 2-8 m.p.h.

Harris' Sparrow found by George Mayfield, Jr. with flock of White-crowned Sparrows on a briary and grassy hillside in mock-orange bushes near an old barn. This bird was a full plumaged male with black throat and head completely surrounding the much lighter grayish-brown cheek patch. It was observed first from the old barn at 10' range. The Dan Gray family, several days later, found an immature Harris' Sparrow on the same hillside, so there must be at least two birds there. The search continues.

The two Short-billed Marsh Wrens have been found consistently to and including census date in thick marsh grass and weeds on the Dawson Frierson farm about one mile north of Mt. Pleasant. Apparently they are wintering there. The Hooded Merganser was seen on a secluded fresh water lake next to Arrow Lake near Mt. Pleasant.

Mary Lucy and William Fuqua, Dan, Jr., Dan III, Dawson and Gaither Gray, Cleo and George Mayfield, Jr. (compiler).

LEBANON. — Same area as covered in previous years, including Lock 5 Wildlife Refuge and adjacent portions of Old Hickory Lake. Although the area around Lock 5 Refuge was covered Dec. 28 and the remainder in the vicinity of Lebanon on Dec. 29, the two have been combined since there was practically no duplication of species. Clear Dec. 28 and gloomy and rainy Dec. 29. John M. Drennon made the count around Lock 5, Myrtle B. Hobbs (compiler).

COOKEVILLE. — Area the same as in previous years, including Quinlan and City Lakes, 10%; city lots, 10%; fields 30%; swamps, 10% and woods, 40%. Dec. 28; 7:30 a. m. to 4:30 p. m. Temp. 25° to 45°; wind 0-5 m.p.h.; sunny until 2:00 p. m., overcast thereafter; shallow water frozen until almost noon. Fifteen observers in ten parties; total party-hours — 90; total party-miles — 159 (24 on foot, 135 by car). Mrs. George Boyd, Dr. Claude Bruce, Dr. and Mrs. J. C. Cummins, Mrs. James and Jim Haile, Roy Hinds, P. L. Hollister (compiler), Elizabeth Killifer, Mrs. Lee Medley, Mrs. S. L. McGee, Dr. Tom Moore, M. R. Richmond, Marie White and Mrs. Milo Williams.

CHATTANOOGA. — All points within a 15-mile diameter circle, center National Cemetery in city; fields and pastures 35%, woodlands 20%, ponds and lakes 15%, creeks and rivers 15%, roadside 10% and residential 5%. Dec. 30; 4:00 a. m. to 5:00 p. m. Clear, temp. 27° to 42°; wind N, 6-10 m.p.h. 18 observers in 8 parties. Total party-hours, 64 (43 on foot, 21 by car); total party-miles 326 (36 on foot, 290 by car). Eight species reported for the first time on the Chattanooga count: Wood Duck, Redhead, Bald Eagle, Barred Owl, Catbird, Palm Warbler, Pine Siskin and Lincoln's Sparrow. Ralph Bullard in the field at 4:00 a. m., got the desired results: four species of owls to help the chapter run up its highest Christmas count. Two Catbirds were reported by two parties from widely separated areas (E. West, Ralph Bullard). The Palm Warblers were seen by Ralph Bullard at a 20' range, along a fence row under excellent lighting conditions. Both species were easily identified. The Lincoln's Sparrow was reported in excellent light on a clear, sunny day (R. Bullard, M. Crownover). At 15' the bird perched on a weed stalk and posed for lengthy observation. The buff field marks were unmistakable. Mrs. J. R. Barnwell, Benton Basham, Guy Beaty, Mr. and Mrs. Ralph Bullard, Rock L. Comstock, Jr., (compiler), Mrs. Rock L. Comstock, Jr., Miss Gladys Conner, Mrs. Hugh Crownover, Nat Halverson, Mr. and Mrs. Howard Meadors, Miss Rheta Morrison, Jack Roberts, Mrs. Henry L. Sliger, Douglas L. Tunsberg, Mr. and Mrs. Eugene M. West.

KNOXVILLE. All points within a 15-mile diameter circle, centered at Ball Camp Pike and Oak Ridge Highway. Dec. 23; 7:30 a. m. to 5:30 p. m. Temp. 30° to 45°; cloudy; wind, S, W-NE 2-10 m.p.h. Twenty-two observers in 12 parties. Total party-hours, 118 (18 on foot, 100 by car); total party-miles, 354 (50 on foot, 304 by car). Jim Campbell, John Elson, Mary Enloe (compiler), Bill Gallagher, Mr. and Mrs. H. C. Garlinghouse, Beth Lacy, Helen Lewis, Mr. and Mrs. J. T. Mengel, Mr. and Mrs. R. A. Monroe, Holly Overton, J. B. Owen, Mrs. Kenneth Sanders, Maxie Swindell, James T. Tanner, Drs. Sam and Isabel Tipton, Mr. and Mrs. George R. Wood.

GREAT SMOKY MOUNTAINS NATIONAL PARK, Tenn.-N. C. — All areas are within a 15-mile diameter circle centered on Bull Head of Mt. LeConte — same general area as 1937-1956 counts. Dec. 30.; 7:15 a. m. to 5:30 p. m. Clear; temp. 20° to 38°; wind 3-5 m.p.h.; ground bare, mostly frozen. 33 observers in 10 parties. Total party-hours 81 (70 on foot, 11 by car); total party-miles 210 (65 on foot, 145 by car). Carlos Campbell, James Campbell, Mr. and Mrs. Robert J. Dunbar, John Elson, Mary Enloe, Mr. and Mrs. W. F. Gallagher, Mr. and Mrs. H. C. Garlinghouse, David Highbaugh, Phillip Huff, Elsie S. Janson, Helen K. Lewis, Dorothy J. McLean, Mrs. George W. McGown, Mr. and Mrs. Robert A. Monroe, Julia I. Moore, Mrs. Earl F. Olson, Mrs. E. E. Overton, Neil J. Reid, Mr. and Mrs. Louis F. Smith, Jr., Arthur Stupka (compiler), Mr. and Mrs. Thomas C. Swindell, Dr. James T. Tanner, Dr. Samuel R. Tipton, Mr. and Mrs. W. J. Vaughn, Mr. and Mrs. George R. Wood (Tennessee Ornithological Society, National Park Service, and Guests).

GREENEVILLE. — All points within a 15-mile diameter circle, center Mt. Pleasant Church, to include Lick Creek, Roaring Fork, Davey Crocket Lake, Nolichucky River, Paint Creek, Albany, Tusculum and Greeneville; woodland 50% (deciduous with small patches of pines and cedars), open fields and pastures 45% (includes ponds and lakes), towns 5%. Dec. 28; 5:30 a. m. to 5:30 p. m. Foggy to clear; temp. 40° to 48°; practically no wind. 9 observers in 4 parties. Total party-hours, 20 (6 on foot, 14 by car); total party-miles, 53 (6 on foot, 47 by car). Seen in area during count period but not on count day: Marsh Hawk and Red-headed Woodpecker. Mrs. Turner Clinard, Mr. and Mrs. Willis Clemens, Mrs. Carrie Christiansen, Mrs. Chester Darnell, Mr. and Mrs. King Gaut, Mrs. Richard Nevius, Richard Nevius (compiler), Mrs. Royal Spees and Karl Spees.

KINGSPORT. — Same area as in previous years. Southeastern slope of Bays Mountain, Holston River at State Park and Boone Lake behind dam. Dec. 29; 8:30 a. m. to 4:30 p. m. Steady rain; 35° to 45°. Thomas Finucane, Robert M. Switzer, Jr., Mrs. Robert M. Switzer (compiler).

BRISTOL, Tenn.-Va. — All points within a 15-mile diameter circle, center at junction of U.S. 11 and Va. (state) route 625, one mile NW of last year's center, to include Bristol, Stone Mill Marsh and South Holston Lake and River; fields and farmland 40%, mixed deciduous forest 25%, lake and river 15%, town and residence 10%, misc. 10%. Dec. 24; 7:30 a. m. to 4:30 p. m. Clear, then cloudy with snow in late p. m.; temp. 10° to 32°;

(Continued on page 71)

THE 1962 CHRISTMAS SEASON BIRD COUNTS

	Memph.	Reelfoot	Nash.	Col.	Leb.	Cooke.	Chat.	Knox.	Smokies	Green.	King.	Bris.	Eliz.
Common Loon			1				3						
Horned Grebe							24						
Pied-billed Grebe				2		1	3				5		
Great Blue Heron		2	1		21	28	3	19	2	1	5		2
Bl.-cr. Night Heron			1										
Canada Goose	15,500				16			19	7	60			
Hutchins Goose		225											
Snow Goose		3											
Mallard	65	130,000	17		6,000	2	41				4	2	
Black Duck		3,500	30		4,500		76						
Gadwall		7,900			175								
Pintail		2,200			12								
Green-wing Teal		7			11								
Blue-wing Teal										2			
Am. Widgeon		6,700			225			2					
Shoveler		2,500		3	7								
Wood Duck		850			4		1						
Redhead	4						2				10		
Ring-neck Duck	61	4,800	48	1	265						2		6
Canvasback	2	1					3				1		
Lesser Scaup		300	17	1	120	2	11			1	13	9	3
Common Goldeneye		8	2								2		1
Bufflehead							6						5
Hooded Merganser				1			97				1		
Common Merganser		2											
Turkey Vulture	2									12		13	
Black Vulture	6			1						14		1	
Cooper's Hawk	1		2			2	1			1			
Red-tail Hawk	33	7	21	4	5	6	5	2	5	1			

Red-shouldered Hawk	4	1	1	10	2	4							
Rough-legged Hawk		1											
Bald Eagle	9					2					1		
Golden Eagle		2											
Marsh Hawk	1	3	1	3	4								
Peregrine Falcon					2								
Sparrow Hawk	18	3	23	7	6	10	9	2	5	1	4	1	
Ruffed Grouse								13		2		3	
Bobwhite	82		9	1		33	50	25	7		15	17	
Am. Coot	15	6,000	1			1					1		
Killdeer	37		61	4	1	6	139	59	20	15	2	13	6
Am. Woodcock					1								
Com. Snipe	2		1	1	8		12	48			1		2
Herring Gull		1	1		50		9	8		1	2		
Ring-billed Gull	2	55	142		5		13	126	1		4		
Mourning Dove	230	19	87	9	1,020	160	274	273	57	255	1	155	15
Barn Owl		2					1						
Screech Owl	2		1				1			2			
Grt. Horned Owl	1	1		1			1		1	1			
Barred Owl	2			1			1						
Belt. Kingfisher	1	2	9	4		1	5	8	1	1	3	6	5
Yel.-sh. Flicker	93	5	57	9	5	13	28	32	9	7	2	7	6
Pileated Woodpecker	2	8	24	8	1	4	7	8	15	4	2	5	5
Red-bel. Woodpecker	51	12	69	19	3	9	28	30	5	8	1	3	1
Red-head. Woodpecker	1	1	5		2	2	3	6			2		1
Yel.-bel. Sapsucker	28	6	26	4		5	8	9	2	2	1	1	
Hairy Woodpecker	13	1	21	7	1		4	5	15	1		3	
Downy Woodpecker	34	7	89	30	8	22	28	46	34	12	2	15	13
E. Phoebe	2		1				2	4	6			2	1
Horned Lark	190		196	6	5	14	65	19	15	75	13	54	

Blue Jay	254	6	109	25	17	120	97	264	73	39	8	57	36
Common Raven									4				
Crow	39	300	280	47	10	205	235	598	519	700	9	150	127
Black-cap Chickadee													
Carolina Chickadee	145	21	200	38	9	50	106	182	304	40	14	47	55
Tufted Titmouse	71	31	175	25	28	95	89	153	101	23	10	40	19
Wh.-br. Nuthatch		5	1			8	13	3	13	1	1	11	
Red-br. Nuthatch							1		16				1
Brown Creeper	13	2	10		1	4	5	7	31		2	7	5
Winter Wren	38	2		7			1	2	3	2			1
Bewick's Wren			6	1		6	1	3		2			
Carolina Wren	74	4	46	10		15	38	119	31	8	1	12	22
Sh.-bld. Marsh Wren				2									
Mockingbird	118	3	138	11	20	38	144	160	30	26		40	21
Catbird							2						
Brown Thrasher	12		3	1	1		15	6	1	2	1	1	
Robin	227		500,000	42	19	10	368	41	220	35		1	26
Hermit Thrush	14	2	3	2			2	5	8	1			
E. Bluebird	4	5	44	11	4	15	32	13	51	34		9	4
Golden-cr. Kinglet	29	4		2			24	67	74		14	3	11
Ruby-cr. Kinglet	32	4	3	1			14	4	4	1	1		
Water Pipit	2		10				23		4				
Cedar Waxwing	25		23				170	55	79		10	9	
Logger-hd. Shrike	22	6	19	4	1		14	25	6	3		5	
Starling	200,000	1,000,000	2,000,000	1,900	300	1,100	1,533	4,708	419	300	11	2,397	1,092
Orang-cr. Warbler	3												
Myrtle Warbler	81		20				20	53	9	7		3	11
Pine Warbler	1												
Palm Warbler							2						
House Sparrow	2,190	42	260	50	60	280	193	349	79	43	8	248	345

E. Meadowlark	515	75	190	18	46	98	249	155	124	75	4	273	5
W. Meadowlark	7												
Red-w. Blackbird	200,000	1,500,000	1,150	340	200		244	50				5	7
Rusty Blackbird	151			88			10	5	8			130	8
Brewer's Blackbird			7										
Common Grackle	300,000	650,000	22	750	500	15	24	1,253					1
Brown-hd. Cowbird	100,000	500,000	100	24	105	6	30	1				45	1
Cardinal	551	40	510	97	26	75	216	460	129	68	15	100	95
Evening Grosbeak									10				
Purple Finch	59		33	2			19	14	46	7			27
Pine Siskin			1	12			1		6				
Am. Goldfinch	245	12	177	20		42	319	100	98	9	4	86	38
Red Crossbill									21				
Rufous-sd. Towhee	61		132	44	11	15	120	142	35	3	9	6	4
Savannah Sparrow	28		10	2			6	2	1				2
Vesper Sparrow	7						2						
Slate-col. Junco	536	8	938	5	8	80	274	317	492	24	15	172	140
Chipping Sparrow							25	7					
Tree Sparrow			1										
Field Sparrow	321	25	240	68		35	327	207	113	24	2	69	50
Lincoln's Sparrow							1						
White-cr. Sparrow	10		27	16	2	2	7	35		15		8	10
White-th. Sparrow	1,527	25	408	78	13	70	245	624	134	31	10	65	106
Fox Sparrow	64	4	6	27		4		7	4			2	3
Harris' Sparrow							1						
Swamp Sparrow	267	100	72	32			44	13	4			2	
Song Sparrow	342	30	196	38	2	16	365	173	81	7	5	44	52
TOTAL SPECIES	70	66	70	61	51	43	82	61	58	51	45	50	49
Individuals	809,066	3,831,402	2,506,555	3,969	13,871	2,689	6,628	11,168	3,620	2,018	236	4,357	2,412

1962

THE MIGRANT

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wind SW 10 to 15 m.p.h.; most water open. Eleven observers in 5 parties plus 3 feeders. Total party-hours, 41 (29 on foot, 12 by car); total party-miles, 232 (11 on foot, 221 by car). Judith A. Abbott, Fletcher Bingham (compiler), Rockwell Bingham, Rosemary R. Bingham, Don Coffey, Wallace Coffey, B. M. Kiser, Mrs. B. M. Kiser, H. W. Nunley, Robert H. Quillen and Enno van Gelder.

ELIZABETHTON. — All points within 15-mile diameter circle, center Wilbur Dam. Dec. 23; 7:15 a. m. to 5:30 p. m. Partly cloudy to overcast with some light drizzle in afternoon. Temp. 32° to 40°; wind NW 5-8 m.p.h. Seven observers in six parties. Total party-hours, 38 (26 on foot, 12 by car); total party-miles, 107 (21 on foot, 86 by car). (Seen in the area during the count period but not on count day: Screech Owl and Ruby-crowned Kinglet). Fred W. Behrend, J. C. Browning, Ed Davidson, Mr. and Mrs. Lee R. Herndon (compiler), Roby D. May, Jr., and Charley Smith.

EASTERN SMOKY MOUNTAINS. — Start at Cosby Recreation Area to Low Gap on Appalachian Trail along trail to Mt. Guyot to Cosby Camp Ground by Rock Creek Trail; evergreen woods 40%, mixed woods 60%. Jan. 1, 1963; 8:00 a. m. to 5:00 p. m. Clear; temp. 22° to 50°; wind 2 m.p.h. Four observers. Total party-hours, 9; total party-miles, 19.5 all on foot. Ruffed Grouse, 5; Yellow-shafted Flicker, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 2; Downy Woodpecker, 1; Blue Jay, 4; Raven, 2; Crow, 1; Black-capped and Carolina Chickadee, 20; Tufted Titmouse, 10; Carolina Wren, 1; Golden-crowned Kinglet, 1; Cardinal, 3 and Slate-colored Junco, 25. Total Species, 14; total Individuals, 77. Dr. Royal Spees, Karl Spees, Lamar Ellenburg, Richard Nevius (compiler).

BIG BALD MOUNTAIN (Unicoi, Tenn., - Yancey, N. C., counties). — 3500-5500 ft. — Deciduous woodland 70%, grassbald 30%. Dec. 30; 7:15 a. m. to 4:30 p. m. Clear to partly cloudy; temp. 8° to 23°; wind NW 3-25 m.p.h., remnants of old snow in patches, trees slightly glazed with ice about 5,000 ft. elevation. Total hours 9¼ (all on foot); total miles 8 (all on foot). Red-tailed Hawk, 1; Tufted Titmouse, 3; Bluebird, 3; Cardinal, 2; Junco, 2. Total, 5 species; 11 individuals. Fred W. Behrend.

ROAN MOUNTAIN (Carter, Tenn. - Mitchell, N. C., counties). — 5500-6150 ft. Coniferous forest (balsam, spruce) 70%; grassbald, 25%; briar - rhododendron - alder patch, 5%. Dec. 31; 8 a. m. to 4 p. m. Clear; temp. 2° to 13°; wind NW to W, 15-40 m.p.h.; 2-5 in. snow; conifers crusted with snow and ice. Total hours, 8 (all on foot); total miles, 9 (Carvers Gap to Balsam Road; entire length of Balsam Road and half way back; up briar patch to far-end parking area; Roan High Bluff; return on paved road to Carvers Gap; Round Bald and Engine Gap; return to Carvers Gap). Red-breasted Nuthatch, 2; Golden-crowned Kinglet, 1; Junco, 2. Total, 3 species; 5 individuals. Fred W. Behrend.

SHADY VALLEY. — Area center at crossing of U.S. 421 and State highway 91. Woodland 40% and fields and pastures 60%. Dec. 19; 7:00 a. m. to 4:30 p. m. Partly cloudy to cloudy, light SW wind. Sprinkle at noon. Temp. 28° to 42°. Patches of old snow, particularly in woods. Total hours

9½ (8 on foot, 1½ by car); total miles 17 (5 on foot, 12 by car). Red-shouldered Hawk, 1; Yellow-shafted Flicker, 1; Pileated Woodpecker, 3; Hairy Woodpecker, 1; Downy Woodpecker, 4; Horned Lark, 2; Blue Jay, 4; Common Crow, 32; Carolina Chickadee, 6; Tufted Titmouse, 3; Brown Creeper, 2; Carolina Wren, 1; Mockingbird, 1; Robin, 22; Golden-crowned Kinglet, 2; Starling, 12; House Sparrow, 59; Meadowlark, 8; American Goldfinch, 13; Cardinal, 6; Red-winged Blackbird, 12; Rusty Blackbird, 3; Brown-headed Cowbird, 5; Slate-colored Junco, 6; Song Sparrow, 8. Twenty-five species, 217 individuals. Fred W. Behrend.

ROUND TABLE NOTES

BLUE GROSBEAK WITH YOUNG IN THE SOUTH HARPETH VALLEY. — A male Blue Grosbeak (*Guiraca caerulea*) was observed in the Basin Spring area of the South Harpeth Valley on 2 June, 1962. Its most noticeable features were a thick, very light beak, two prominent burnt-orange wing bars, and the marked contrast of a dark blue head against a brown back and wings. Its breast was light, mottled with grayish. It was larger than an Indigo Bunting (*Passerina cyanea*) and smaller than a Robin (*Turdus migratorius*). It was deliberate in action and had a tendency to elevate its crown feathers. The bird was singing from a utility wire where it sat in near, open view for about three minutes. Reference to Dwight's **Sequence of Plumages and Molts of the Passerine Birds of North America** enabled us to identify this bird as a sub-adult male Blue Grosbeak.

This record, which appears to be the first June record for the Nashville area, stimulated a close watch to determine if the bird were breeding. What appeared to be the same individual was observed in the same place 7 July, when it was again singing with some vigor.

In the same location on 31 July, a bright blue male Blue Grosbeak with adult russet wing bars flew from utility wires to a patch of foxtail grass (*Setaria* sp.), where several grosbeaks were feeding. The adult male grosbeak, a brownish one with a bluish cast and light beak, and a totally brown individual with a brighter brown head and dark beak moved as a group to more foxtail, Johnson grass (*Sorghum halepense*), and low saplings. The brown bird gave call-notes like a young bird. It extended and quivered its wings and opened its beak in a begging fashion when the bluish-brown bird approached and appeared to give it food. The young bird, which seemed almost independent, flew well, and at one time held a beetle awkwardly in its beak. At times all three birds could be seen in one binocular field.

While these three grosbeaks, interpreted to be a family group, were in immediate view, a fourth grosbeak with a lightish, mottled breast sang from a wire one hundred yards away. This fourth bird, which did not consort with the other three, appeared to be the sub-adult male observed on 2 June and 7 July. The fact that it continued to sing suggested that it was a non-breeding bird.

One or more of the grosbeaks were observed in the immediate area on numerous occasions through 15 August. The singing male was observed on 24 July and was seen with two brown birds on 26 July. The brownish birds were there on 28 July. On 31 July, one brown and two blue birds were noted. On 2 August, one bird was calling. On 15 August, a blue bird and a completely brown bird were feeding on grass seeds. During these

repeated observations, we have had opportunity to note especially the song of this grosbeak, the sharp quality of its call-note, its characteristic silhouetted posture on utility wires, its thick beak, its slightly elevated crown feathers, and its habit of gently fanning its tail feathers.

This record of a male and female Blue Grosbeak accompanied by a young bird and the apparent passage of food from the female to the young would seem to establish the first breeding record of this species for Middle Tennessee. Open, scrub-like growth adjacent to grass-seed fields appears to offer suitable nesting habitat.

Previous records for this precise location were made in 1951, when an adult male was observed on 10 July (Laskey, Moore, Goodpasture. *Migrant*, 1951, 22:3, 43), and when a brown grosbeak was recorded 31 August and 2 September. The distribution of spring records in Middle Tennessee would lead us to anticipate additional breeding records in ensuing seasons.

KATHERINE A. GOODPASTURE, LARRY DOUGLASS, EARL BISHOP; Vanderbilt Medical School, Nashville.

A HOUSING SHORTAGE?—April 3, 1962 was the day the Brown Thrasher began her first nest of the season in the backyard hedge, a growth of privet, hackberry, wild grape and honeysuckle. Five days later, with only the supporting foundation of twigs in place, she abandoned that nest spot because of repeated "little boy disturbances" in the hedge. On April 10 she began nest-making in another place in the hedge (which subsequently was successful.)

In the meantime the Catbirds arrived, and on April 27 she also started a nest in the same hedge, some distance from that of the thrasher. On June 5 one little bird left the nest. Too young to be fledged — soft, too-yellow mouth, primaries so underdeveloped it could not fly, pert little tail sketchily covered with nothing more substantial than down, it made one wonder what crisis forced it from the nest too soon. It clung to twigs and small branches for two days, but during the night of June 7 it disappeared.

Early on the morning of June 8 the female Catbird visited the incompleting nest abandoned earlier by the Brown Thrasher. Apparently satisfied after a critical inspection, she immediately began carrying material, finished the nest for her own, and on June 22, both parents began feeding nestlings. Mid-morning of July 7 three sturdy youngsters left the nest. Both adults carried food that day, but on July 8 the busy mother added another chore: she began a third nest!

MAXIE SWINDELL.

FIRST MIDDLE TENNESSEE RECORD FOR THE LOUISIANA HERON.—On 8 September, 1962 Harry Monk and the writer visited Ashland City marsh while on an unsuccessful trip for migrating shorebirds. We waded through high grass to the edge of the lake and found it full, water going back into the grass. Many stumps were seen, just out of the water. Great Blue Heron and Wood Duck were feeding across the lake. Nearly a quarter of a mile to our right was the head of the lake. There a Great Blue was feeding and some thirty feet away was a very odd bird on a stump that was just out of the water. 16 X 50 binoculars showed it to be facing us with its head and neck down in a feeding position. Its breast

was very dark and the color ended in a sharp "V". The belly was bright white. The writer immediately thought it might be a "Tricolored" as he had seen two of these birds less than five months before in N.E. Florida. We eased back from the shore so that the high grass would shield us and walked up the lake. We then cut back towards the lake's edge and could see the head and long neck above the grass as it looked at us from some 50 yards. The bird was facing slightly away so that we could not see the white stripe down the throat. Then it sprang into the air facing away and climbed steeply for some 30 ft. of altitude, then dropped back down to a stump about 75 yards off. From the rear view while climbing the top of the head and the neck appeared bright blue to the writer, and the wings seemed medium gray with a good bit of blue in them. On the stump it gave us a side view. The bill was very dark. Where it joins the head a light color was visible as on the plate of heron heads in the first volume of the new A.O.U. series. No plume was seen on the head. On the back was a hand sized patch of cinnamon brown. The wind raised these up and outward proving them to be plumes. From this view Monk thought there was a decided blue cast to the wings and the upper back, instead of a dark or slate gray that we would expect. The legs seemed to be about the color of a weathered oak board, lighter than a Little Blue Heron. Its size was about that of a Little Blue or perhaps slightly larger. The bird was never in a position to show the large white areas under the wing of a Louisiana. We did not flush the bird again as we left it with hope that others might get to see it. Weather was hot, the sky 95% covered with thin clouds and light was bright for these conditions. We stayed with the bird from about 2:45 to 3:30 P. M. Observations were through 7 X 35, 8 X 30, and 16 X 50 binoculars.

HENRY E. PARMER, 3800 Richland Ave., Nashville 5, Tenn.

BOOK REVIEWS

SEABIRDS IN SOUTHERN WATERS. — by Prince Philip, Duke of Edinburgh. 62 pages plus more than 80 photographs by the author and eight bird paintings by Commander A. M. Hughes, R.N. Harper and Row, publishers, 49 East 33rd Street, New York 16, N. Y. \$3.95.

Prince Philip relates very vividly and interestingly his ornithological experiences on two expeditions aboard the Royal Yacht *Britannia*. The first in 1956-1957, took him from Kenya to Malaya, New Zealand, Antarctica, around Cape Horn to the Falkland Islands, South Georgia and other islands to St. Helena; the second by way of the islands of the Pacific through the Panama Canal to Bermuda. While traversing the long stretches of open sea their only visible companions were the sea birds in which he became interested. He began trying to identify and photograph them. Up to this time the only birds he knew, except the common game birds, he would have recognized as sparrows, seagulls and ducks.

Fortunately there was a dark room on the yacht so that the results of his efforts could be determined in a very short time. Since most of the birds were black and white or gray all photographs were taken in black and white. At the time, no thought was given to the possibility of publication or more photographs would have been taken. Most of the birds

represented here have been photographed so infrequently that he was persuaded that they would be of interest to people who like birds.

The book is by no means a scientific ornithological work nor is it a comprehensive collection of all the species that inhabit the areas traversed. For convenience the pictures have been arranged in sequence progressively from the tropical seas toward the antarctic and not in sequence of the journeys. Maps showing the routes followed and many of the little known places visited are inside the front and back covers. A section following the photographs is devoted to brief descriptions and habits of the birds, the paragraphs bearing corresponding numbers with the photographs.

LEE R. HERNDON.

THE LIFE OF BIRDS. — By Joel Carl Welty. 546 pp. illustrated with 129 line drawings, 99 photographs and a total of 90 maps, charts and diagrams. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, N. Y. 1963. \$12.95.

The Life Of Birds is unlike most bird books in that it was not designed for field identification where the birds are listed in taxonomic order, accompanied by brief descriptions to assist the student in the identification of one species from another which may possess some common characteristics. This book was designed to present the basic biological characteristics of birds and through its presentation instill in the reader an intense desire to learn more of the fundamentals of all forms of bird life.

More than 8,000 references have been consulted and the material screened for authenticity and worthiness of inclusion in the text. Only about ten per cent of the references were of sufficient interest to be quoted or listed in the bibliography.

Many of the remarkable adaptations which equip birds for survival in the particular niche of preference, with regard to geography, climate, habitat, locomotion, food, enemies and many other peculiarities are discussed and specific instances cited in many cases. Many questions have arisen, some of which have been answered, others are being worked upon, still others remain unanswered. In some cases the unique methods used to arrive at the solutions are discussed.

The first chapter entitled "Birds as Flying Machines" tells how and why birds are adapted to the types of flight peculiar to a given species. The shape of the body, the relative position of the appendages on the body, relative size and shape of wings, structure of skeleton and energy supply make the bird a much more efficient machine than man has been able to devise. Some are adapted for short flights, others are equipped for long sustained flights, such as migration, others for soaring, where very little energy is required; some for relatively slow flights where still others for very rapid flight as in pursuit of food on the wing while still others are flightless although they possess wings.

All the known kinds of birds have been classified into more than 8,600 species and it is estimated that less than one per cent remains unclassified. The various characteristics which form the basis of classification are mentioned, such as mandibles, wings and feet to mention only a few of the more obvious variations. Adaptations for securing food, nest building, flightlessness, and various types of flight, running, swimming, diving and perching are characteristics which assist in classification. A hypothetical family tree is given, showing possible relationships of the various classes.

In all, twenty-three chapters compose the book. Titles of the remaining chapters are: Skin, Scales, Feathers and Colors; Bones and Muscles; Brain, Nerves, and Sense Organs; Food and Digestion; Blood, Air and Heat; Excretion, Reproduction and Photoperiodism; Behavior; Social Behavior; Songs, Calls and Other Sounds; Territory; Courtship and Mating Habits; Incubation and Brood Parasitism; The Care and Development of Young; The Numbers of Birds and Their Regulation; The Ecology of Birds; Flight; Migration and Orientation; The Origin and Evolution of Birds.

The book is factual, easily understandable to anyone who has had a course in general biology. It is quite free of technical terms and any section of it can be read independently from others without losing continuity. For the student who is only mildly interested in the biology of birds this book would surely stimulate that interest and since it contains the most up-to-date material available, in condensed form it would be a valuable addition to any library, private or public.

LEE R. HERNDON.

Dr. James T. Tanner, of the University of Tennessee, Dept. of Zoology and Entomology, accompanied by his son, David spent the summer of 1962 in Mexico studying the status, habits and requirements of the Imperial Woodpecker of Mexico. They penetrated much farther into Indian territory than they had expected but did not find any Imperial Woodpeckers. They are becoming extinct faster than anticipated. He did learn enough about their causes of extinction and present status to prepare a short paper which has been submitted to THE AUK for possible publication.

The trip was supported by grants from the American Museum of Natural History and the International Committee for Bird Preservation.

LEE R. HERNDON.

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