

The Future of Ornithology in Oklahoma

By GEORGE MIKSCH SUTTON

We all know how human it is to discuss big plans expansively and wind up doing little. I have come to Oklahoma to continue my study of birds, to teach ornithology in this great University, to carry on and help direct field studies in connection with the Oklahoma Biological Survey. In the summer of 1951 I taught an ornithology course at the University's Biological Station at Lake Texoma. Teaching that course, seeing Oklahoma birds again, and working with the vigorous, friendly staff and students there, convinced me that Oklahoma would be a good place for me to be. I have come, and I want to help.

Oklahoma is an exceptional state ornithologically. Here the East meets the West and the North the South. This concept has so often been voiced that it needs no repetition; but this fact of the geographical "midwayness" of the area is important. We have no seashore; we have no very high mountains; but what we do have is attractive to a remarkable *avifauna*. I wish to call attention to some of the problems which confront us as students of Oklahoma's birds.

Let us consider first a species known to all nature-lovers of the Southwest, the Road-runner. I have paid much attention to this "chaparral cock," and feel that I know it fairly well. I have successfully raised several young ones to maturity and have written a detailed life history of the species for the Arthur Cleveland Bent "Life History" series. The Road-runner ranges widely in the southwestern United States and in Mexico. It probably reaches its northeasternmost limits in Oklahoma. This fact, of itself, may not be very remarkable, but when we bear in mind the bird's comparative flightlessness and inability to migrate, its presence here the year round becomes an almost spectacular phenomenon. Oklahoma is far from tropical. Winter here can be cold. What does the anomalous bird eat when winter sets in? The grasshoppers, lizards, and snakes

upon which it feeds in summer are nowhere to be seen. What does it find in the snow—field mice? Does it dig in the ground or tear open old logs in searching for food?

The observations of Mr. and Mrs. Charles G. Barndt, of Sulphur, Oklahoma, suggest the possibility that our Road-runners subsist to some extent on vegetable matter in winter. Mr. and Mrs. Barndt noticed a Road-runner about their place throughout the winter of 1951. It ate bits of canned dogfood near the back step of the house and appeared to pick up corn from mixed seed scattered on the ground. It caught a Downy Woodpecker at the feeding-tray. The Barndts noticed that a bunch of mistletoe on their porch was gradually disappearing. They did not see the Road-runner actually swallowing the leaves and berries, but the only tracks leading to and from the mistletoe through the snow were Road-runner tracks.

Such observations as these are of tremendous interest to any close student of birds. So far as I know, no detailed study of the Road-runner's winter food-habits has been made. Especially is this true of the northern frontier of the species' range.

So we of Oklahoma have work to accomplish this winter. We must find Road-runners and watch them. Collecting a few specimens in late morning or the middle of the day (after the birds have had a chance to eat something) might help us to obtain data, but careful watching is what is needed most. Incidentally, anyone who watches Road-runners should ascertain where the birds roost and what position they take when sleeping. The Road-runner is a very special bird, remember. Allegedly it is a carnivore. Obligated to maintain a high body-temperature, it must find food, and plenty of it, the winter through. Never having seen a Road-runner in the snow, I find it hard to believe that this bird can survive a Cleveland County winter. Perhaps it doesn't. Assuredly the species is not common hereabouts, even in summer. But what of the other parts of the State? At Kenton, in the extreme northwestern part of the Panhandle, I have seen many Road-runners in summer and fall. The winters there are far from gentle.

Several Oklahoma birds are the very antithesis of the Road-runner in certain ways. Take, for example, that highly migratory shorebird, the Upland Plover or Bartramian Sandpiper, a northern species in that it breeds from Yukon and the barren grounds west of Hudson Bay southward into the United States. This bird is a well-known migrant in Oklahoma. Its liquid cry is a familiar sound, both by day and by night, from late July to early September. It also summers with us in small numbers, the southernmost limits of its breeding range being in Oklahoma. In June of 1937, just as Karl W. Haller and I were leaving the northeast corner of the State, we saw two Upland Plovers not far from the highway. We suspected that the birds were breeding. They flew back and forth above us, obviously more than mild-

About the Author

George Miksch Sutton, Professor of Zoology and Curator of Birds, University Museum, is a very distinguished ornithologist both as a scientist and artist. Born in Lincoln, Nebraska, he received his B. S. from Bethany College in West Virginia in 1923 and his doctorate from Cornell in 1932. Bethany College conferred on him the honorary degree of Doctor of Science in 1952. He has traveled from the Arctic to Mexico in his study of birds. One of the most beautiful of the books which he has written and illustrated was published in 1951 by the University of Oklahoma Press: Mexican Birds: First Impressions. Based upon an Ornithological Expedition to Tamaulipas, Nuevo León and Coahuila, With An Appendix Briefly Describing All Mexican Birds. The water-color and pen-and-ink sketches by the author make this a very handsome book.



ly disturbed. At length we saw one of the downy young, slender-legged but strong, running rapidly across the road. What is it about northeastern Oklahoma that this bird finds attractive? Is it the openness, the grass, the insect food? All of these probably; probably more. But why, if it finds this particular area acceptable, should it not nest elsewhere in the State? Understanding the special breeding requirements of this species should make a fascinating study for some ornithologist.

So many essentially eastern birds nest in Oklahoma that a person living in the Ozarks or some other wooded part of the eastern half of the State might easily come to think of the whole State as "eastern." The Scarlet Tanager, an "eastern" bird, is common locally. Indigo Buntings sing loudly from the roadsides. Chimney Swifts twitter happily above the towns. It is far from easy to choose from such species as these Oklahoma's most truly *eastern* bird. What makes a bird eastern? What *is* a species? Such time-honored questions as these rise once more to plague us.

Glibly we speak of the Baltimore Oriole as eastern, the Bullock's Oriole as western, but concepts may, and do, change. At present most ornithologists think of the Baltimore as a non-plastic eastern species, the Bullock's as a western "sister-species"—very similar to the Baltimore, to be sure, but different enough to be called a "full species." Whatever the two birds are, whatever their relationships *inter se*, their ranges overlap throughout roughly the western half of the main body of our State, and so consistently do they interbreed here that it is sometimes impossible to tell, from either song or color, which species we are seeing or hearing. What a fascinating complex for the geneticist!

In Oklahoma the ranges of three handsome buntings—the Indigo, Lazuli, and Painted—also overlap. I have collected a cross between the Indigo and Lazuli in Roger Mills County in a brushy pasture wherein all three species were singing. Near Lake Texoma I have heard the Painted and Indigo singing within a hundred yards of each other—precisely as I heard them, only last summer, not far from Savannah, Georgia. What a treat awaits him who first sees an adult male cross between the Painted Bunting and the Indigo! The mind balks at trying to imagine such a gaudy creature.

Some of the most interesting of the east-west complexes may prove to be subtle and difficult to study. Already such careful workers as Dr. George B. Saunders, Jr., have found themselves puzzled by the relationships between the East-

ern and Western Meadowlarks. Oklahoma has areas wherein the two species co-exist and hybridize. These areas and the mixed populations should be studied further. Both the Rose-breasted Grosbeak and Black-headed Grosbeak occur in Oklahoma, though I am not sure that either species nests here. Hybrids between the two have been reported from other areas in the Mid-west and these hybrids should be looked for here during the season of migration. Points to be remembered in this connection are (1) that immature birds of the two species resemble each other closely; and (2) that adult male hybrids in winter plumage may so closely resemble the adult male Rose-breast in winter feather as easily to pass for that species.

I have said enough, surely, to convince any thinking ornithologist that the eastern, western, northern, and southern elements of Oklahoma's birdlife are tremendously interesting. I have not said a word as to the total number of bird species to be found here. It is only human, of course, to take pride in being first. I have heard California bird enthusiasts crowing about the length of their state-list. The Texas list is long, too, and one can imagine the language a Texan might use in describing it. I am not informed as to which of the two lists is the longer. Arizona may have the third longest list, Nebraska the fourth, etc. As for Oklahoma: we are not precisely "in the running" as yet, for no really up-to-date list exists. When such a list has been prepared, it will, I predict, be a long one.

Be this as it may—and my personal feeling is that we ought not to waste time in competition of this sort with sister states—we should know, and as soon as possible, what our list of birds truly is. For many years I have been working at such a list. Beginning in the fall of 1932, when my good friend the late John B. Semple and I visited the Black Mesa country of Cimarron County, I have been interested in ascertaining which of the species not listed for Oklahoma truly do not occur here. One by one most of the species on my 'moot' list have shown up, either as breeding birds or as transients. Mr. Semple and I returned to the Black Mesa country in the fall of 1933. I again visited the State in 1936, centering my attention on the nesting habits of the Mississippi Kite. In 1937, I led a party of four to various parts of the State, observing and collecting in about two-thirds of the counties. My collections, unfortunately, are divided. Some of the specimens are at the Carnegie Museum in Pittsburgh; some are at Cornell; but many are with me here, and I hope they will be used constantly.

My check-list is far from complete at

this moment, but I hope to resume work on it soon. My friend Carl D. Riggs, Director of our Biological Station at Lake Texoma, is deeply interested in such a list, for he knows how invaluable it would be to students at the Station. Dr. and Mrs. Frederick M. Baumgartner, at Stillwater, are deeply interested in it, for they are preparing a semi-popular book on the birds of the State—a book every bird-student in Oklahoma will want to possess, and one of which we will be proud not alone because of the text but also because of the handsome colorplates by Wallace Hughes. My check-list is only a *working list*, understand. The ink with which it is printed will hardly be dry before some Lovie Whitaker, Gerbert Rebell, Joe Creager, or James Norman will pop up with another unheard-of bird within our boundaries. Ornithology's fluidity is one of its fascinating characteristics. Birds will not, and do not, stay put. We who study them cannot stay put either. Only a day or so ago I received a telephone call from one of Norman's enthusiastic bird-watchers, Mrs. W. T. Mayfield. She talked as if she hardly expected me to believe what she was about to report. I was not, however, bowled over, for I have experienced Oklahoma surprises before—among them quicksand, black dust-storms, rattlers, and an angry bull. What Mrs. Mayfield reported was two little parakeets, one green, the other blue, on wires with a flock of blackbirds. All the birds—blackbirds and parakeets—had been feeding on kaffir-corn east of Norman. The birds were Grass Parakeets, and they probably have no right to a place on our state-list since no orthodox hurricane blew them here from Australia, their native land; but Mrs. Mayfield's observations were, and are, interesting none-the-less. I shall not be greatly surprised if some less well-informed person calls one of these days reporting *Carolina* Parakeets, one of them green, the other blue.

Ideally, in preparing my check-list, I should organize the work in such a way as to have a report, and regularly, from each and every county. A check-list for each county would indeed be a wonderful way—and a relatively simple one—to keep track of the State's birds. But good observers are few and far between: there aren't many of quite the Margaret Morse Nice, R. Compton Tate, Walter E. Lewis, T. C. Carter, or Roberta Ortenburger caliber, though I hasten to say that many persons now actively observing birds within our borders are as able and as conscientious as any in the United States. The names of these present-day observers are too numerous to mention; but I do

want to call special attention to work I have asked one of my students, J. C. Johnson, Jr., to do this semester. Mr. Johnson is to prepare a Check-list of Cleveland County birds. It is my hope that this list will serve as a sort of model for other lists, and that observers throughout the State will tackle comparable work in various areas.

Note with care this phrase "various areas." Students of birds the United States over might toss off such a phrase, for any State, even little Rhode Island, has its "various areas." But ponder the State of Oklahoma—its wonderful swamplands in the extreme southeast; its wooded Ozarks; its Arbuckles and Wichitas; its Antelope Hills; its shinnery country, so loved by the Lesser Prairie Chicken, Mississippi Kite, and White-necked Raven; its amazing salt plains; its enchanting Black Mesa. Can we do anything but agree that various is an especially well-chosen word? Some of these areas have been studied carefully, but not all of them, and some have hardly been "touched." I have in mind especially the southeastern corner. I have done a good deal of work there myself, in the vicinity of Idabel and Broken Bow. But the collections I made and notes I took serve chiefly as proof that much more work needs to be done if we are to understand that part of the State. Those who study States, as such, have to guard against paying too much heed to political boundaries. I have come to think of southeastern Oklahoma not so much as part of a political unit as part of an important ecological unit, namely our "Great Southeast." It is my fond hope that a student at this University will tackle and see to completion a study of the birds of this westernmost tip of our "Great Southeast."

The check-list of which I have spoken will appear to many as being cut, dried, and overly "scientific." Comments on distribution will be terse and possibly general; the accent will be on the species rather than the subspecies; and there will be virtually no discussion of plumages, behavior, or nesting. Habitat requirements should, I believe, receive emphasis, for there is a marked correlation between the distribution of birds and that of plants, soils, water-areas, and deserts. Ornithology without ecology is almost unthinkable. I can hardly consider a bird and its problems without thinking too of its habitat. There are times when I feel that there is no such thing as a bird *without its habitat*. This is merely a mental habit, I suppose; but it is a habit even Emerson must have had, for you remember his writing of bringing the sparrow and his nest home "at even" only to find that he could never possess those important, essential parts of the

bird—the woods and the sky. Dr. A. O. Weese, the distinguished ecologist of our faculty, agrees with me, I am sure, that a study of ecology must be a part of the future of Oklahoma ornithology.

So we have a check-list as part of our future. Every bird observer in the State can help with this. Lists giving earliest and latest dates for migrants in spring and fall will be more than helpful: they will be essential. Local lists of breeding birds, based on careful observations, whether specimens have been collected or not, will be helpful. There is a real bird-book, too, remember—that by our friends the Baumgartners—on its way. All of us can help with this. Perhaps I am wrong in calling the work "semi-popular" for the word may for some readers connote exaggeration or inaccuracy. I am sure the Baumgartners have a carefully considered, accurate, and *complete* opus in the making. It will be popular, but not by any means only that. There will be distributional statements every bit as accurate, and probably even more detailed, than those of my proposed check-list. We have at least one county-list under way, the one covering Cleveland County. There very likely are other such lists in the making—lists that I do not happen to know about at this time.

Mentioning the Cleveland County list leads me to discuss a paper prepared recently at the Biological Station at Lake Texoma by Mrs. John Whitaker. This list is not a county list, exactly, though it deals principally with Marshall County. It is a list of the lake-area's birds. It is well-prepared and should be published soon, not only for use at the Station, but as a model for such studies elsewhere. Consider with me for a moment the special surveys which should be made of the Black Mesa, the shinnery country, the salt plains, the several lakes. Consider the important life history studies to be made of certain of our game birds—the Lesser Prairie Chicken, the Bob-white, the Long-billed Curlew, the Mourning Dove, to mention only four. That especially attractive, and completely beneficial bird of prey, the Mississippi Kite, should be studied carefully and efforts made at once to set aside a large sanctuary for it. Such a preserve might well furnish a permanent home also for the Lesser Prairie Chicken and White-necked Raven, not to mention certain mammals, reptiles, and plants. An exceedingly interesting Oklahoma bird is the Black-capped Vireo, which nests in the Arbuckles. Wild plum thickets are believed to be this vireo's favorite nesting place, though the only nests I have so far found have been in oaks. The Black-capped Vireo may well be more common in Oklahoma than anywhere else

in the United States. Certainly I have seen more of the birds here than I have elsewhere. In any event it is our special duty, as Oklahomans, to find out what we can about this species and to make certain that a habitat to its liking is furnished it for all time. This may mean more than a mere setting aside of land. There is such a thing, remember, as plant succession. If wild plum thickets are all-important to the species, then wild plum thickets, not merely sanctuary areas, will have to be provided. This may mean a *shifting* of sanctuary areas—the sort of shifting that may be necessary in Michigan if the famous Kirtland's Warbler is to survive.

Mention of sanctuaries brings to mind what appears to me to be our very special Cleveland County problem—namely protection for the prairie-dog colony now flourishing just northeast of Norman. A party of us recently had a look at this colony and we were much impressed by the scores of animals grouped near their burrows or running about. From the colony came an almost incessant whistling, chirping, or squealing. We noticed, too, that birds were about. Over to one side a Marsh Hawk alighted on a fence post, ducking the attacks of a fierce little Sparrow Hawk. Something about these big prairie-dog colonies seems to attract the birds of prey. I am not sure that a Marsh Hawk ever catches a prairie-dog, and I suspect that the Sparrow Hawk never attempts to. But the activity about the colony, or perhaps its insect life, is attractive to birds of prey; so if we can set the area aside as a prairie-dog sanctuary we shall with the same move be creating a general wildlife sanctuary as well. Let us work toward this as quickly and as efficiently as we can. Cattle now graze there. Perhaps this grazing should continue lest an overabundance of grass drive the prairie-dogs out. In any event, the area should be set aside and given special attention. If grazing is stopped and the prairie-dogs show signs of disappearing, the grazing should be resumed.

With a prairie-dog preserve and the Oliver Wildlife Sanctuary at our disposal, we of Norman, of the University, and of Cleveland County will have two fine areas in which careful studies of various sorts can conveniently be made—not to mention the joy of being able to visit lands dedicated to the preservation of nature. I have visited the Oliver tract only once, but foresee that some interesting bird records will be made there.

All in all, the future of ornithology in Oklahoma is bright. The Oklahoma Biological Survey will sponsor field-work in

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earlier cultures its heritage of thinking and feeling, and incorporate its inheritance into its own life. To make a democratic culture was no simple problem. It required speculation and experiment. In their magazines, the early nineteenth-century writers provided discussion that was fruitful for their generation and is enlightening to us as we try to understand the beginnings of our culture.

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areas concerning which we do not now have enough information. The teaching of ornithology at our Lake Texoma Biological Station will continue and develop. A course in Birds of the World will be offered at the University. Organizations like the Tulsa Audubon Society and Cleveland County Bird Club will spring up and grow. Bird students the State over will see to it that interesting specimens which come to hand are preserved with care. *The Scissortail*, the official organ of the recently organized Oklahoma Ornithological Society will continue to bind us all together.

I have been heartened tremendously by the University's furnishing our fine bird and mammal "range" at the museum with a new tiletex floor. *Range* is a word we ornithologists use for a room in which scientific skins are kept for reference and study. Our range is large, well-lighted, and well-ventilated—the direct result of Dr. Stovall's thoughtful planning. Mr. Hoover is building us five new book-cases for my big ornithological library, not to mention dozens of new trays for the metal bird-cases.

For the Birds of the World course I plan to offer next year, many new specimens will be needed—a Kiwi from New Zealand, a Cassowary from Australia, a Frogmouth from New Guinea, a Screamer from South America, to mention only four. Alumni and friends can help us gather these specimens. Some will come from zoological parks, some from other museums, some straight from the field.

We shall have a glorious time together studying birds—preserving specimens as they come to hand, carrying on life history studies, banding birds, feeding birds in winter, seeing to it that bird habitats are preserved. Much work is to be done. Doing this work together can enrich the lives of all of us. I predict that it will.

In his dissertation for the degree of Doctor of Education, Ernest Allen Jones points out that approximately 63 percent of the students entering Oklahoma colleges and universities from 1948 to 1952 had less than average reading ability. About 21 per cent possessed adequate reading ability for study in our colleges.

The Atmosphere for Progress in Science and Technology

By BERNARD O. HESTON

In recent months there have been cries that science is being stifled by those who would insist upon secrecy, especially in connection with the atomic energy program in the United States. Those who demand that the results of many current investigations be kept secret believe, and presumably in good faith, that the security of this nation depends upon our having a body of knowledge which has not yet been acquired by other peoples. A part of this belief arises from a non-uniformity of definition, and perhaps another part from the failure to look to the past to discover the effects of this kind of isolationism.

To begin with we must agree upon a definition of science, and for the purpose of this discussion, we limit ourselves to the field which many call pure science; applied science we term technology. Thus science will mean the study of the fundamental behavior of the universe, the discovery of physical laws, and the development of hypotheses and theories which will guide our thinking. When the observable facts agree with the theories and hypotheses, we say that we understand the field under investigation. The scientist is engaged in gaining this understanding, and in the process he must acquire many new factual observations from the world about him.

Many of the factual observations of the scientist, with or without the intervention of some theory, may be put to practical use. This exploitation of science and the kind of information the scientist used, is technology. Perhaps an example or two will

further distinguish between these fields of endeavor.

The geologist may examine a specimen obtained from a prospective oil well, and, if he is not busy with the production of petroleum, he will be interested in the rock as an indication of the age of the particular formation. The adjoining formations will tell him, through the application of a theory about the formation of the crust of the earth, something about the history of his sample. He may be able to estimate the climatic conditions which prevailed before or during the formation of the stone. When he has completed his examination, he will be satisfied that he knows more about the earth, and he may even be able to use new observations for an extension of theory. This is pure science at work.

The petroleum geologist, or perhaps only the driller who has no special theoretical knowledge, may examine the same specimen and recognize it as the same formation which he encountered in the past. He may even be led to predict the probable success of the venture on the basis of past experience. He is not concerned with the age of the earth, and when he finishes his examination, he expects only to obtain practical results, that is, more oil, rather than an increase in knowledge. This use of knowledge is technology.

Most recent and striking example of the difference between science and technology is in the field of atomic energy.



About the Author

Dr. Heston, whose specialty is physical chemistry, came to the University in 1942 as an Assistant Professor of Chemistry, was made an Associate Professor in 1942, and Professor in 1947. He had taught at the State Teachers College, Duluth, Minnesota, and at Oklahoma A. and M. College before joining the University faculty. A member of Phi Beta Kappa, Sigma Xi, and American Chemical Society, he is active in research as well as successful as a teacher.