

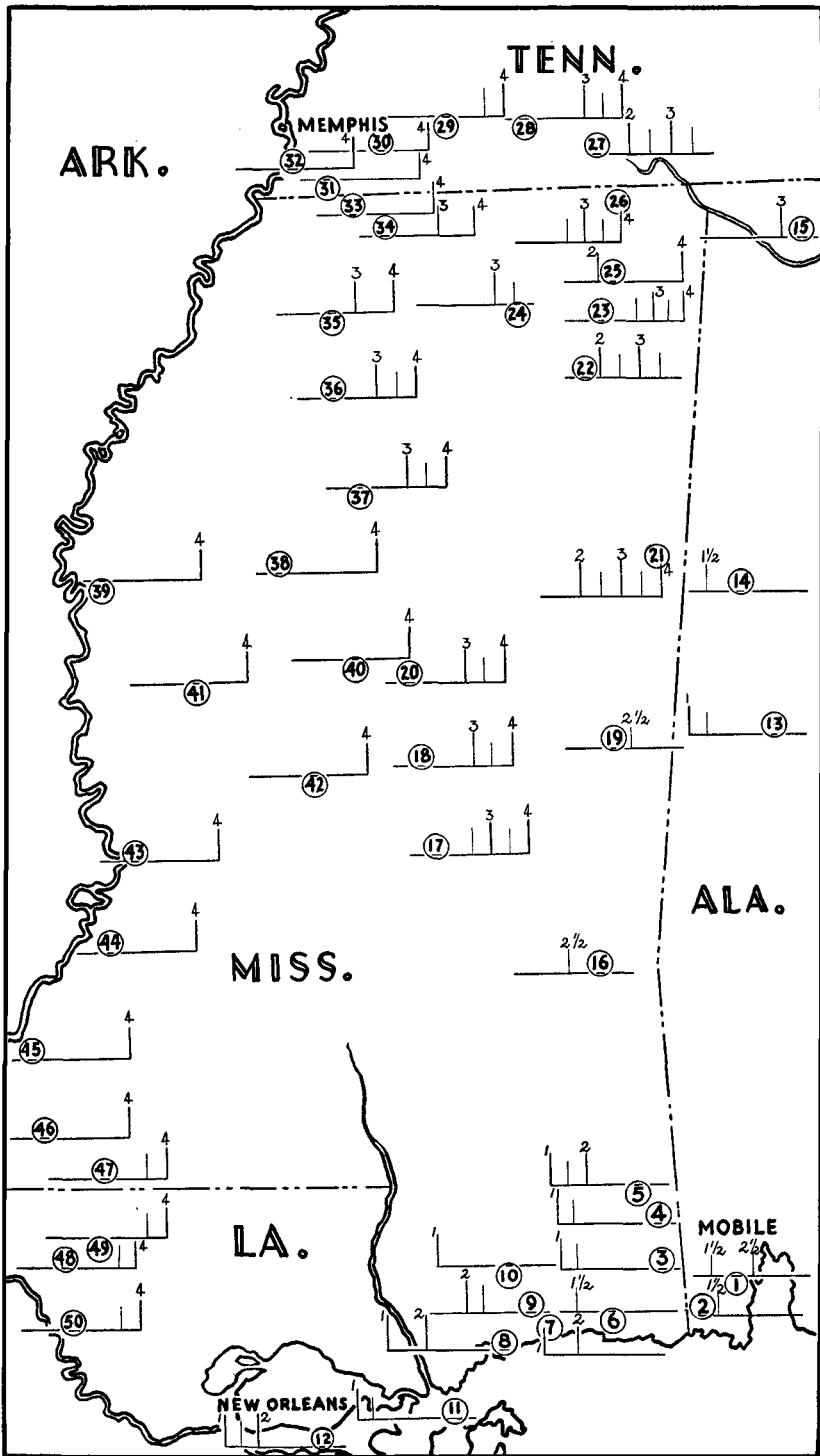
QUISCALUS IN MISSISSIPPI


BY FRANK M. CHAPMAN

SINCE the publication of the latest of my three reports in 'The Auk' (52: 21-29, 418-420, 1935; 53: 405-417, 1936) on the distribution and relations of grackles I have secured material for a further study of these birds. Dr. Thomas Barbour has sent me specimens from the islands of Nantucket and Martha's Vineyard; Dr. Stanley C. Ball, from the vicinity of New Haven; Messrs. Roy Latham, Winston Guest, and Leroy Wilcox, Drs. William Tod Helmuth, 3rd, and Eugene Swope, Mrs. Gladys Gordon Fry and the American Museum's collector, Sven Raven, from Long Island; Mr. Charles H. Rogers, from Princeton, New Jersey; S. K. George and Thomas W. Hull, from Maryland; Herbert L. Stoddard, from the Thomasville, Georgia, region; Mr. Thomas D. Burleigh, from coastal Mississippi, and Mr. E. A. McIlhenny from throughout that State and its borders. The Mississippi-area collections made during May 1937 and 1938, chiefly by Mrs. Rosamond Lockett Ballard for Mr. McIlhenny, include 358 males and compare in thoroughness with those previously made under Mr. McIlhenny's direction in Louisiana. They therefore warrant an attempt to extend our knowledge of the distribution and relations of *Quiscalus* eastward and northward from that State. Later I hope to acquire equally adequate collections from other critical areas in the range of this species.

In resuming this study, I may be permitted to restate briefly the theory advanced to account for existing conditions. Thus, I have suggested that during the last Glacial Period the two ancestral forms of grackles were confined respectively to southeastern Texas and the peninsula of Florida. With the retreat of the ice, both began to move northward. Because of unfavorable conditions *aeneus* did not cross the Sabine River and enter Louisiana until the coastal marshes had been passed. Thence it ranged eastward across Louisiana to Mississippi.

The Florida Grackle, in beginning its post-glacial journey, went northward and also westward. In the latter direction it reached Port Arthur, southern Louisiana, where its further westward progress was apparently stopped by the eastern border of the treeless region, the western margin of which appears to have prevented the eastward distribution of *aeneus* at this point. The Florida Grackle evidently extended its range not only westward along the coastal region, but northward into the interior. In Louisiana (see map, Auk, 53: 412, 1936) it went north until, on an east and west line, it met the southern limits of the range of *aeneus*. Here, presumably for the first time, the two met and interbred, producing *ridgwayi*. Our studies show that throughout a band about forty miles wide this interbreeding still continues. North of this line only pure *aeneus* is found; south of it only *stonei*



TEXT-FIG. 1.—Distribution of *Quiscalus* in Mississippi. Localities are numbered, in circles. Form of grackle present indicated by the symbol  in which the longer marks represent respectively: 1, *Q. q. quiscula*; 2, *Q. q. stonei*; 3, *Q. q. ridgwayi*; 4, *Q. q. aeneus*. The shorter marks stand for intermediates. (See accompanying table.)

DISTRIBUTIONAL TABLE OF *Quiscalus quiscula* FROM MISSISSIPPI AND ADJOINING AREAS

COASTAL REGION: SOUTHWESTERN ALABAMA TO SOUTHEASTERN LOUISIANA	Florida Grackle No. 1	Intermediates	Stone's Grackle No. 2	Intermediates	Ridgway's Grackle No. 3	Intermediates	Bronzed Grackle No. 4
1. Theodore, s. w. Mobile, Ala.....		1		1			
2. Grand Bay, Mobile, Ala.....		1					
3. 11 mi. south Hurley, Miss.....	5	5					
4. Agricola, Miss.....	2	2					
5. Lucedale, Miss.....	1	6	2				
6. Ocean Springs, Miss.....		3					
7. Gulfport, Miss.....	1		2				
8. Bay St. Louis, Miss.....	2		1				
9. Lyman, Miss.....			1	1			
10. Saucier, Miss.....	1						
11. Chef Menteur, La.....	1	2					
12. New Orleans, La.....	1	1	4				
WESTERN ALABAMA, EASTERN MISSISSIPPI, NORTH TO SOUTH- WESTERN TENNESSEE							
13. Greensboro, Ala.....	2	6					
14. Reform, Ala.....		1					
15. Leighton, Ala.....					2		
16. Shubuta, Miss.....				1			
17. Forest, Miss.....				2	2	3	2
18. Carthage, Miss.....					2	2	5
19. De Kalb, Miss.....				1			
20. Kosciusko, Miss.....					1	3	5
21. Columbus, Miss.....			9	4	3	3	1
22. Tupelo, Miss.....			6	1	2	2	
23. Baldwyn, Miss.....				2	5	1	2
24. New Albany, Miss.....					1	1	
25. Boonville, Miss.....			1				7
26. Corinth, Miss.....				1	1	3	5
27. Selmer, Tenn.....			1	1	4	3	
28. Bolivar, Tenn.....					1	1	4
29. Summerville, Tenn.....						1	6
30. North Eads, Tenn.....							5
31. Capleville, Tenn.....							9
32. Memphis, Tenn.....							14
WESTERN MISSISSIPPI							
33. Olive Branch, Miss.....							1
34. Byhalia, Miss.....					1		3
35. Como, Miss.....					1		9
36. Pope, Miss.....					1	4	7
37. Grenada, Miss.....					1	2	6
38. Greenwood, Miss.....							10
39. Greenville, Miss.....							10
40. Durant, Miss.....							9
41. Louise, Miss.....							10
42. Canton, Miss.....							1
43. Vicksburg, Miss.....							10
44. Port Gibson, Miss.....							10
45. Natchez, Miss.....							11
46. Wilkinson, Miss.....							10
47. Centreville, Miss.....						2	8
48. Lindsay, La.....						5	13
49. Olive Branch, La.....						3	7
50. E. Baton Rouge, La.....						1	2

and its variants toward the Florida bird from which it is apparently derived. It should be remarked that in spite of the fact that although intergradation between these forms is complete and has presumably been occurring since first they met, we still find typical individuals of each breeding in the same colony (see Text-fig. 1).

If, in entering Mississippi, I had attempted to extend the east-south limit of the range of pure *aeneus* solely on the basis of what had been learned in Louisiana, I should have continued it eastward across Mississippi to Alabama before turning northward. But, to my surprise, in central Mississippi this line abruptly turns northward to enter western Tennessee. The remaining part of Mississippi is an area of intergradation. The Bronzed Grackle decreases in numbers as we go eastward and, in pure form, is unknown in Alabama. The *quiscula-stonei* complex becomes more common toward the east, but, except in the coastal region, is unknown west of the Mississippi River. Details are given in the chart and accompanying tables. The conditions which they reveal may possibly be explained by the fact that Mississippi is nearer to the theoretical Glacial-Period home of the Florida bird than it is to the corresponding area occupied by *aeneus* in Texas. When in the post-Glacial Period the two birds began to move northward, the Florida bird, having the shorter distance to go, appears to have taken possession of Alabama and entered Mississippi as *aeneus* was arriving from the west. There is no evident topographic cause for the change from east to north in the range extension of *aeneus* after entering Mississippi and we may therefore assume that it was due to prior occupation of the more eastern field by the Florida bird. If this suggestion be considered plausible, it offers support for the theory of the post-glacial dispersal of *quiscula* and *aeneus*, respectively, from Florida and Texas.

Beyond this point I am not at present prepared to go. In extending the field of our investigations eastward from Mississippi we will presumably soon leave evidences of *aeneus* behind and be concerned with an attempt to discover how *stonei* has developed from the Florida bird (*quiscula*). Since suggesting that *stonei* is a mutant of *quiscula* which, whether it goes north to New Jersey or west to Louisiana, gradually develops the characters of *stonei*, I have acquired no further material throwing light on this problem. Meanwhile, I venture to hope that in another year we shall know the grackles of Alabama and Georgia as we do those of Louisiana and Mississippi.

At the same time I trust that we may acquire adequate collections from our own doorstep, in the New York City region, and thus be in a position to explain why *ridgwayi* is the prevailing, almost the sole, grackle of the eastern third of Long Island.

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