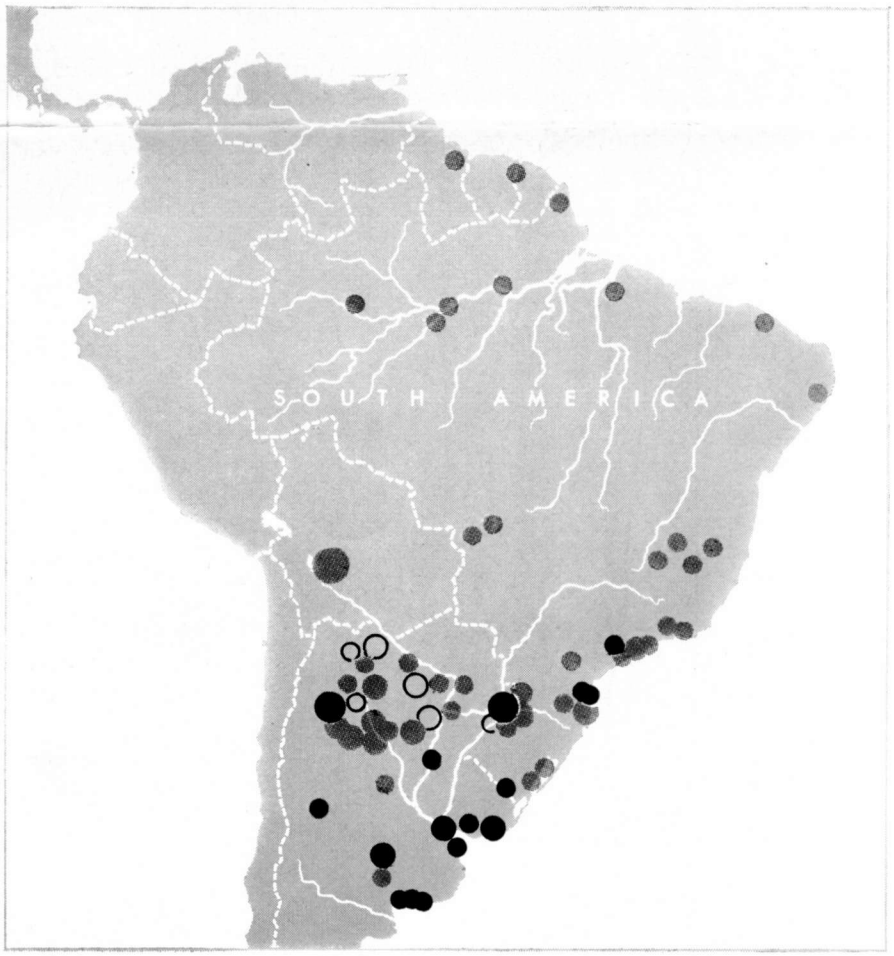
first brood of worker ants then develops very rapidly. The eggs hatch in about nine days, the larvae change to pupae after about the same period, and adults emerge from the pupae about a week later. Often small groups of queens cooperate to found colonies. Later, however, the first emerging workers execute the surplus queens so that only one remains. Once established, the young colony grows with startling speed. Within four or five months it contains over 1,000 workers. In a year it seethes with tens of thousands of workers and has reached sexual maturity; that is, it has begun to produce the winged males and queens which start the life cycles of new colonies.

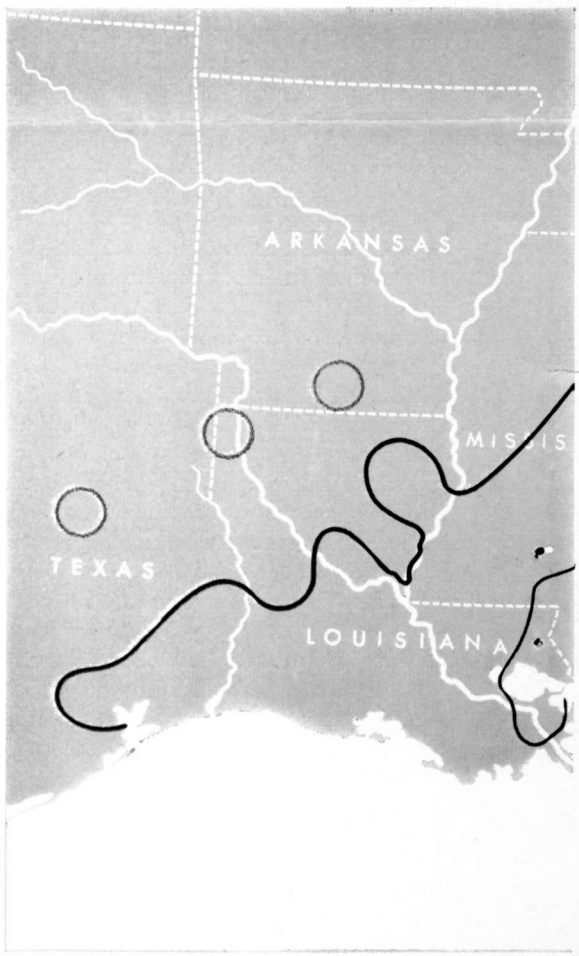
Given this means of dispersion, exactly how did the imported fire ant spread in the U. S.? As I have indicated, the imported population was at first quiescent and then exploded. We now know that at the beginning of the explosive phase an important change in the genetic structure of the population occurred. In the 1920s, following the introduction of the colony into Mobile, it consisted entirely of a relatively large, blackish-brown form that corresponded exactly to the southernmost race of the mother population in South America. The range of this race is northern and central Argentina and part of southern Uruguay. The founding colony (or colonies) may have come from Buenos Aires or Montevideo in ships. Once established in Mobile, the dark form was not notably successful. William S. Creighton, a Harvard University graduate student in entomology who studied the population in 1928, found it limited to Mobile and the suburban community of Spring Hill. There was no inkling of the explosion to come.

Sometime in the 1930s a second form of the imported fire ant made its appearance in the Mobile area. It was reddish-brown in color, smaller in size than the original immigrant, and it built smaller nests. Its origin is not positively known. Three possibilities have been considered: (1) that the second form was introduced from another part of South America, (2) that it was a mutation of the original dark form, (3) that it represented a recombination of genes already present in the dark form. Several lines of evidence point to the first alternative. Where light and dark colonies meet we find colonies of many intermediate colors. This suggests that the variation in color is controlled not by one gene but by several. Moreover, the light and dark forms differ in characteristics other than color, and these characteristics vary independently of one another; thus they are probably controlled by different groups of genes. So it seems unlikely that mutation or recombination can account for the sudden appearance of the complex genetic structure of the light form.

Furthermore, recent studies have shown that the light form, or its close equivalent, occurs abundantly in certain parts of northern Argentina and southern Bolivia. Perhaps like the dark form it was introduced into the U. S. in cargo shipped out of Buenos Aires or Montevideo. Whatever the origin of the light form, the significant fact is that it



FIRE-ANT SPECIES imported from South America is widely distributed there. Black dots represent the dark form of the species; circles, the light form; gray dots, all other forms.



SPREAD OF SPECIES began about 1918. Black lines show the limits of the central