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**AN UNUSUAL NEST OF THE PRAIRIE MOUND-BUILDING ANT**  
(HYMENOPTERA, FORMICIDAE)BY ROBERT E. GREGG, *University of Colorado*

As shown by Wheeler (1902), the mounds of this ant tend to be placed in the vicinity of water, mostly in marshy ground. This has been confirmed by the author's experience (Gregg, 1944), but many nests are to be found as well on higher and better drained ground. In wet meadows, the ants either build conspicuous, conical domes, making use of the tall grass stems as support for the friable earthy material out of which the nest is constructed, or occupy natural hummocks. The two giant nests which Wheeler found were about a square meter in size, and apparently were on relatively dry soil. To judge from his account, they must have been very similar in appearance to the one described below.

Although I have collected extensively in the region about the head of Lake Michigan, nothing exceptional was noticed about the nests of the prairie ant, *Formica cinerea neocinerea* Wheeler until Mr. A. S. Windsor called attention to a nest of this species near Hazelcrest, Illinois. The formicary was located beside a highway and at the edge of a willow thicket in definitely well-drained soil. As seen in the photographs, it measured considerably more than a meter in diameter and approximately 30 cm. in height. The sides were abrupt and vertical, and the surface was devoid of any vegetation except for a luxuriant growth of grass at the periphery. When photographed by Mr. Windsor in 1939 (Figs. 1 and 2), and again when seen by us in 1941, the nest was in excellent condition. The mound was not inspected further until the fall of 1944, when Mr. Windsor reported that it had retrogressed to the point where only a small portion of the original colony was active (Fig. 3). He has suggested that the extension of the willow thicket may be partly responsible for its present status, as the shade produced by the shrubs has increased.

I had originally suspected that the members of this colony belonged to the European species, *Formica cinerea* Mayr, but upon examining a large vial of specimens collected for me from the nest, I found that they were the form *neocinerea* described by Wheeler from Rockford, Illinois (Wheeler, 1913). It is apparently the same species, however, to which he refers in his discussion of the occurrence of *cinerea* in America (1902), but which he had not then recognized as distinct from the Old World type. In comparing the ants from the Hazelcrest nest with specimens of the subspecies *neocinerea* collected in nearby localities, I have noticed that a few of the specimens are also exceedingly close to, if not identical with *F. cinerea altipetens* found in Colorado. The

latter was described by Wheeler from Florissant, Colorado at an elevation of over 8,000 feet, and it has a broad, cordate petiole with the superior border sharper than in *neocinerea* and definitely notched in the middle. Wheeler states that it is "extremely common in the type locality, where it forms populous colonies which inhabit large earthen mound-nests (2-3 ft. in diameter and 6-10 inches high), overgrown with grass in the alpine meadows".

Whether the nest here under consideration can be composed of hybrids between *neocinerea* and *altipetens*, despite the fact that the latter is supposed to be confined to relatively high altitudes, I am unable to tell, but it is not beyond the realm of possibility. If such is the case, could it be that we have an example of hybrid vigor outwardly expressed as a function of nest size? This is merely a suggestion, for we know too little of the genetics of ants to be able to venture a positive statement on the matter.

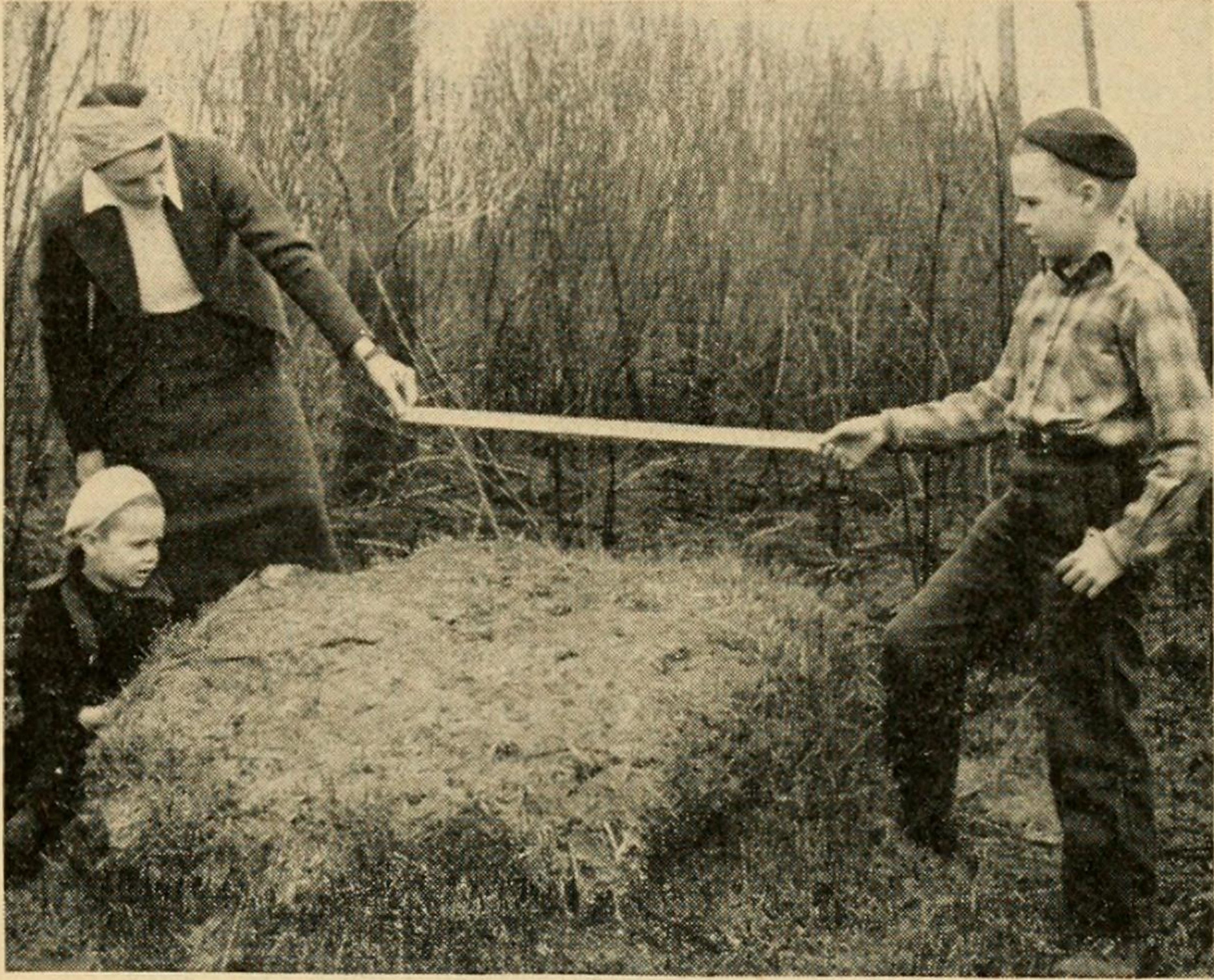
*Formica cinerea neocinerea* is the most conspicuous ant on the prairies and wet meadows of Illinois. Hundreds of its nests are visible as one drives along, especially in spring before the grass has grown high enough to obscure them. The species is highly adaptable as indicated by the variety of its adjustments to physical conditions. As has been pointed out, the formicaries differ widely in size and shape. They vary from low, flat, inconspicuous mounds, with or without a covering of turf (a bare masonry surface is indicative of the most flourishing colonies); to larger, higher and more rounded mounds, particularly in low, moist soil; to conical, sugarloaf domes in areas subject to inundation; and finally to huge, mesa-like constructions described in this report. The last of these, however, is only occasionally encountered, and if it is not the product of individuals of a subspecific hybrid, there is somewhat of a puzzle as to the particular set of environmental conditions which may be responsible for such developments. Though the center of the range of this ant is the Mississippi Valley, and marshy conditions seem to be the most favorable site from the standpoint of its numbers, it does not, according to present information, build its largest nests on wet ground.

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PLATE 16

- Fig. 1. Mound of *Formica cinerea neocinerea* Wheeler at Hazelcrest, Illinois. Early spring of 1939. Photo by A. S. Windsor. Fig. 2. Same as Figure 1, but in July 1939. Photo by A. S. Windsor. Fig. 3. Degenerate mound of *F. c. neocinerea* in early spring of 1945. Photo by A. S. Windsor.

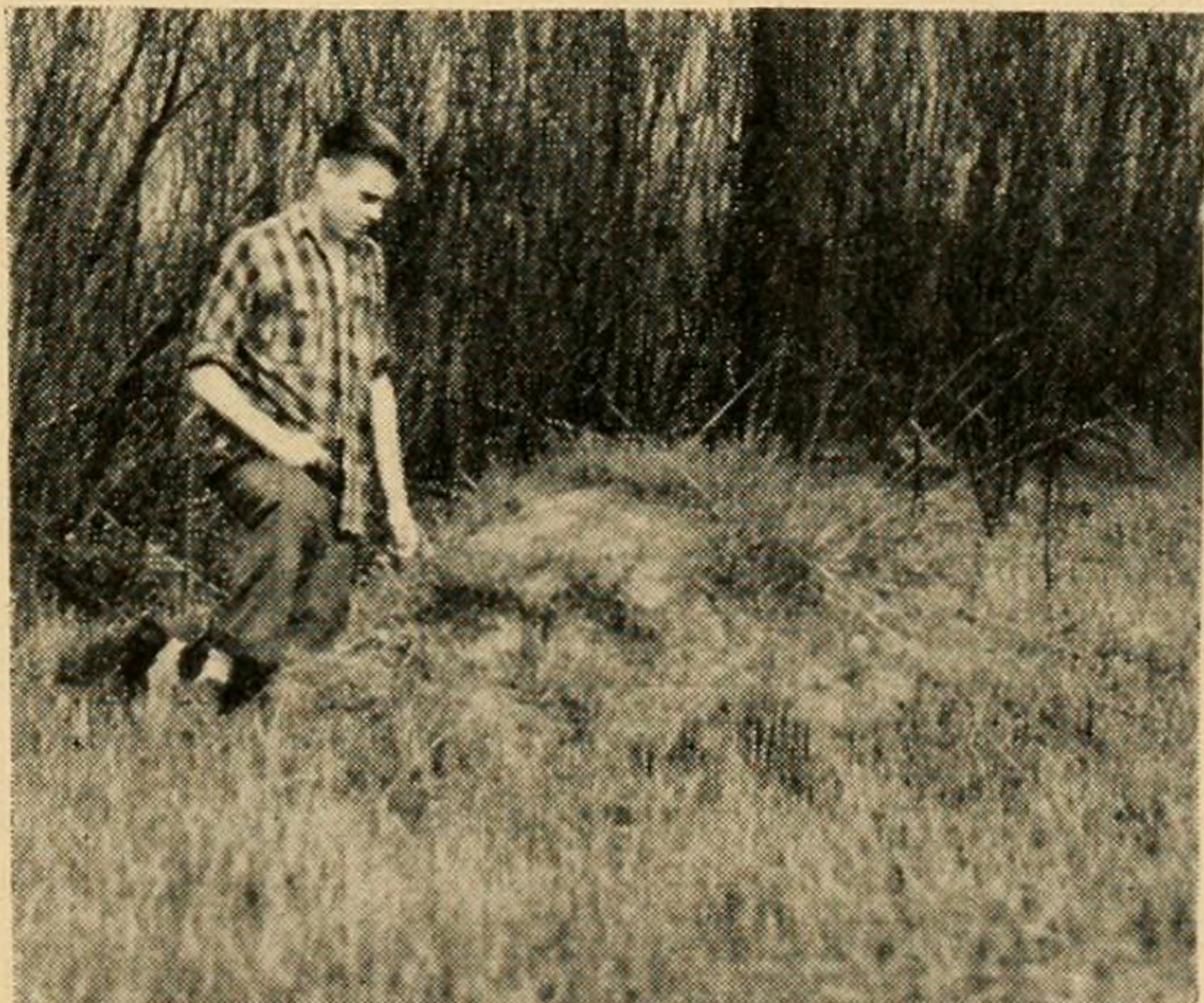
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The prairie ant, I believe, may be regarded as a subdominant, at least, if not a true ecological dominant. Together with the grasses and sedges of the prairie habitat, it seems to "meet the full impact of the environment and modify it." In support of this contention it may be said that, (1) the colonies are established with or without the presence of grass in their immediate vicinity (some have been found thriving amid railroad cinders or on other bare soil), (2) they markedly influence and change the surface contour in places, (3) they are responsible for the movement of large quantities of soil, (4) they noticeably affect the vigor of the vegetation around the nest (a more luxuriant growth of grass which begins quite early in the spring), (5) they afford an abode for a variety of other organisms, both myrmecophilous and non-myrmecophilous, (6) they carry on specialized relations with the Aphididae which so profoundly affect plant life, and (7) their influence is perennial for it is present not only throughout the year, but continuously from year to year.

Special relations between this ant and certain parasitic species are noteworthy. Members of the *sanguinea* group (*Formica sanguinea* and its subspecies), and the ant *Polyergus rufescens breviceps* use *neocinerea* as slaves or auxiliaries in establishing their colonies. Several nests of *Polyergus* have been located in the region (Gregg, 1944), but they remain extremely rare despite the vast assemblage of *neocinerea* nests that is almost everywhere observable. This may serve to give some index of the numbers of a host that are required to maintain the relatively minute population of another, but dependent, species.

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