

account of the habits which he attributes to ants: "In summer time, after harvest, while the ears are being threshed the ants pry about in troops around the threshing floors, leaving their homes, and going singly, in pairs, or sometimes three together. They then select grains of wheat or barley, and go straight home by the way they came. Some go to collect, others to carry away the burden, and they avoid the way for one another with great politeness and consideration, especially the unburdened for the weight carriers. Now these excellent creatures, when they have returned home, and stored their granaries with wheat and barley, bore through each grain of seed in the middle; that which falls off in the process becomes a meal for the ants, and the remainder is unfertile. This these worthy housekeepers do, lest when the rains come the seeds should sprout, as they would do if left entire, and thus the ants should come to want. So we see that the ants have good share in the gifts of nature, in this respect as well as others. . . . So the ants though they need no threshing time, nor men to winnow for them, nor an artificial draught of wind to separate corn and chaff, yet have the food of men who both plough and sow for it" (Moggridge).

The following account of modern harvesting ants is taken from Moggridge's valuable and interesting work. He found four species of genuine harvesters, and carried on observations from October to May at Mentone in the south of France. In a warm and sheltered valley, a few minutes' walk from the house in which he lived, he discovered thirty nests of the most active seed-storing ants. The spot was a rough slope of soft sandstone rock, with accumulations of sandy soil in the hollows, covered with a sparse and scrubby vegetation. Cultivated lemon terraces lay on the edge of the wild ground lower down in the valley, and at that season were overgrown with a rank crop of weeds, most of which were in seed. "I had scarcely set foot on the wild ground," he relates, "before I was met by a long train of ants (*Atta barbara*), forming two continuous lines, hurrying in opposite directions, the one with their mouths full, the others empty. About ten yards distant, partly shaded by some small bushes, lay the nest, to and from the entrance of which the incessant stream of incomers and outgoers kept flowing." The workers usually sought their harvest at some distance from the nest, going in search of it as far as the cultivated ground where the crops of weeds were more abundant and more varied. "In one case I was able to follow the thread-like column of workers from the nest to the weedy terrace, and found that the nearly continuous double line measured twenty-four yards. Even this gives but an inadequate idea of the number of ants actively employed in the service of the colony, for hundreds of them were dispersed among the weeds on the terrace, and many were also employed in sorting the materials, and in attending to the internal economy of the nest. Still this affords some evidence of the systematic and extensive scale on which foraging is carried on by this ant, and of the high importance which these creatures attach to their provision of grain."

The ants brought in not only seeds of large size and fallen grain, but also green capsules of shepherd's purse, chickweed, etc. They did not employ any materials in the construction of their nest, but simply excavated it out of the earth itself or the sandy rock; the large mounds, in great part composed of vegetable matter, frequently found at the entrances of their nests, were nothing more than the rubbish heaps of each establishment. They consisted in part of earth and grains of gravel brought from the nest during the excavation of the subterranean chambers, but principally of plant refuse, such as the chaff of grasses, empty capsules, gnawed seed-coats, and the like, which would occupy much space if left inside the nest. While an army of workers is employed in seeking and bringing in supplies, others are busy sorting the materials thus obtained, stripping off all useless envelopes of seed or grain and carrying them out to throw away.

"I selected a nest," Moggridge relates, "where the coarse and hard rock lay near the surface, compelling the ants to extend their nest in a horizontal direction. Here, almost at the first stroke, I came upon large masses of seeds carefully stored in chambers prepared in soil. Some of these lay in long sub-cylindrical galleries, and owing to the presence in large quantities of black shining seeds of amaranth, looked like trains of gunpowder laid ready for blasting. There were in this nest seeds, etc., which had been taken from more than twelve distinct species of plants, belonging to at least seven separate families. The granaries lay from an inch and a half to six inches below the surface, and were all