

The numbers of ovarioles in females varied between 2 and 5 in each ovary. One queen each had 2+2 and 3+3 ovarioles, seven had 4+4, four each had 5+4 and 5+5, one had 6+5, and in two females the number could not be established. In workers usually 1+1 ovarioles were found (in two specimens they were not detected, or were absent), and no spermatheca was present. The worker ovarioles in most instances were short, fine and translucent, only one worker of col. 1 and of col. 2 each had a growing oocyte in one of their ovarioles.

Between 5 and 7 Malpighian tubules were recorded in both workers and queens. In queens, the oesophagus within the thorax was slightly extended, but did not form a wide thoracic crop as found in many other ant queens (Petersen-Braun and Buschinger, 1975).

c) Brood periodicity and development

As stated above, col. 1 was collected on 18 Nov. without eggs, whereas in col. 2 and 3, found six and eight days later, eggs were already present in the field. In col. 1, eggs appeared from 19 Nov. onwards with numbers increasing up to several hundred until 22 November. Thus, in all three colonies the first batch of eggs after the winter was laid fairly simultaneously.

Larvae started to hatch in col. 1 on 30 Nov. thus only nine days after the first eggs had been observed. From a second batch of eggs laid in January, 1988 (see below) the first larvae hatched after 12 days, perhaps because of somewhat lower temperatures.

On 20 December, 1987, no more eggs, but an estimated 130 larvae were present in col. 1, and on 21 December some 10 pupae were recorded. Thus larvae also develop quickly (in about 3 weeks). In col. 3 the first pupae were found 36 days after egg-laying, and 24 days after the first larvae had hatched.

Pupal development in col. 1 also took 3 weeks, the first newly eclosed specimens being recorded on 18 January, 1988. In total, the development time from egg to the adult is thus about 60 days. The number of cocoons, however, was considerably lower than that of larvae (41 pupae from ca. 130 larvae), and the premature opening of cocoons and consumption of pupae was repeatedly observed. This was presumably caused by inappropriate rearing conditions. Most (perhaps all) of the young adults were ergatoid females, and no males emerged from the broods.