

insula were hatched in the laboratory. It was noticed that these larvae differed in the absence of lateral carapace spines from those of *P. pisum* figured by Lebour (1928). In view of this it has been assumed that this species is *P. novaezelandiae*, a view which is supported by the descriptions of Filhol (1885) and Lenz (1901).

In order to determine the differences between adult *P. pisum* and *P. novaezelandiae*, specimens of the former were obtained from Plymouth through Dr Atkins and compared with *P. novaezelandiae* from Sumner.

Before discussing the species further it is necessary to draw attention to the different forms assumed during the life history. This polymorphism is now well established for *P. pisum* (Atkins, 1926, 1958) and for *P. ostreum* (Christensen and McDermott, 1958) but has not previously been described in *P. novaezelandiae*. Briefly it may be stated that three forms occur:—

- (1) the well known mature female with membranous, unpigmented carapace and a typical broad abdomen;
- (2) a hard-shelled orange-brown pigmented form which, although always having a narrow abdomen, may be male or female (this form is usually referred to as the male in older literature);
- (3) a soft-shelled, unpigmented form resembling the hard form in the abdomen and in other features, and including both sexes. The eyes are visible from above in the two latter forms, but are not usually visible in the first.

The following differences apply to all stages:—

- (1) In *P. novaezelandiae* the legs are shorter and stouter than in *P. pisum*.
- (2) In *P. novaezelandiae* the outer margin of the merus of the third maxillipede bears a dense row of hairs along its full length, though these become shorter proximally. In *P. pisum* a dense row of hairs is found along the distal half of this margin only.
- (3) In *P. novaezelandiae* (Fig. 4), both the fixed and movable fingers of the hand bear stout teeth which bite together when the fingers are closed. In *P. pisum* (Fig. 3) the tooth on the fixed finger is obsolete and removed distally from a larger tooth on the movable finger.
- (4) The form of the mandibles is variable in both species. However, in *P. novaezelandiae* (Fig. 6) there are usually several small, acute teeth present on the molar process, whereas in *P. pisum* (Fig. 5) there are commonly only 1 to 3 teeth close to the incisor process.

Differences observed only in hard-shelled forms include:

- (5) The colour pattern. Although the extent of pigmentation varies considerably from one individual to another, all can be referred to a basic pattern (Fig. 1) which is quite distinct from that of *P. pisum* (Fig. 2).
- (6) The tufts of long, plumose setae which fringe the walking legs in this stage occur on both the anterior and posterior margins of the propodus, carpus and merus of the last leg in *P. pisum*, whereas in *P. novaezelandiae* long setae are developed only on the merus of this leg, those on the other segments being quite short. This distinction is lost in mature females as, in both species, the setae of the last legs are reduced to a dense fringe along