VIII. SUMMARY
SUMMARY

I. The thesis is the first of its kind on the intertidal Porcellanid crabs along the Karnataka region of the west coast of India. It deals with studies on systematics, larval development, juvenile morphology and study of tolerance to salinity dilutions, mainly from the Karwar area.

II. In all, 11 species belonging to 6 genera were collected and their taxonomic account is given along with generic definition, necessary keys, illustrations, information on variations, colour in live condition, ecology etc. For those species already known from the west coast, the detailed description is not given.

III. Salient features of the taxonomic studies are as under:

1) Genus Petrolisthes:

1. Petrolisthes coccineus (Owen): New record to India.

2. P. boscii (Audouin): Differences in morphological features from those of Sankolli's (1967a) Ratnagiri material of the west coast have been cited. New record to the Karnataka Coast.
3. *P. lamarckii* (Leach) : Variations from those of Ratnagiri material (Sankolli, 1967a) are recorded. New record to the Karnataka Coast.

4. *P. rufescens* (Heller) : Recorded for the first time from India, under its proper name.

The status of this species as an independent species and not a variety of *lamarckii* has been discussed, based on adults as well as larval evidence.

ii) Genus *Pachycheles* Stimpson :

5. *Pachycheles natalensis* (Krauss) : New record to the Karnataka. Necessary comparison with Ratnagiri material (Sankolli, 1967a) is made.

iii) Genus *Porcellana* Lamarck :

6. *Porcellana ornata* Stimpson : Variations from those of Ratnagiri material of Sankolli (1967a) are given. New record to Karnataka.

7. *Porcellana gravelei* Sankolli : Present material is compared with the account of the species as given by the original author Sankolli (1963a) are given. New record to Karnataka.
iv) Genus *Pisidia* Leach:

8. *Pisidia dehaani* (Krauss): Males of this species were not described by Sankolli (1967a) and as such the males are described for the first time on the west coast of India. Also differences from those of Sankolli's (1967a) Ratnagiri material are cited. New record to Karnataka.

9. *Pisidia gordoni* (Johnson): Differences between the present material and earlier accounts of the species by Sankolli (1967a), under the name *P. spinulifrons* (Miers) and *P. gordoni* (Johnson) (1970) are given. Recorded for the first time under its proper name from India.

v) Genus *Polyonyx* Stimpson.

10. *Polyonyx loimicola* Sankolli: Differences from those of Bombay and Ratnagiri material are given. New record from the Karnataka region.

vi) Genus *Raphidopus* Stimpson.

11. *Raphidopus indicus* Henderson: Collected for the first time from the intertidal zone. Its occurrence as a commensal (with the annelid worm
Loimia medusa Savigny) was not reported so far. Recorded for the first time from the west coast of India.

**LARVAL DEVELOPMENT:**

IV. Studies on larval development is based on actual laboratory hatchings of the larvae obtained by keeping alive the ovigerous females of each species individually.

V. Life histories could be worked out successfully in the following two species and detailed descriptions of larval stages have been given:

1) Genus *Petrolisthes*:

*P. rufescens* (Heller).

The entire life history comprises 2 zoeal + megalopa stages. The larvae of this species have been described by Gohar & Al-Kholy (1957) from the Red Sea, partly from the laboratory hatchings and rest from plankton. Their larvae, however, show significant differences, thus indicating that identity of their so-called *rufescens* is rather doubtful. As such, full account of life history of *P. rufescens* has been given in the present thesis.

Also, differences between *P. rufescens* and its
closely allied *P. lamarckii* with which *rufescens* is often considered either a synonym or a variety, have been given substantiating the validity of *P. rufescens* as an independent species, based on larval evidence (present work).

The present study on the larvae of *P. rufescens* and also *P. lamarckii* (Shenoy & Sankolli, 1971a, and also reared by me) with which it can be confused also indicated that larvae described as of *P. rufescens* by Gohar & Al-Kholy (1957), may belong to a different species altogether.

11) Genus *Pisidia* Leach:

*P. gordoni* (Johnson)

The complete metamorphosis up to megalopa consisting of 2 zoeal stages has been worked out.

VI. JUVENILE MORPHOLOGY:

Account of juvenile morphology in the family Porcellanidae has been given for the first time (except for first crab instar of *Petrolisthes lamarckii* described by Shenoy & Sankolli, 1971a), which is based on the crab
instars reared in the laboratory from megalopa stage onwards of the following:

i) Genus *Petrolisthes* Stimpson:

Illustrated descriptions of three juvenile crab instars have been given in *Petrolisthes rufescens* (Heller).

The first crab instar of this species when compared with that of *P. lamarckii* (Shenoy & Sankolli, 1971a) shows distinct differences, thus substantiating the separation of the two species based on juvenile morphology too.

ii) Genus *Pisidia* Leach:

Detailed descriptions of four juvenile crab instars have been given in *Pisidia gordonii* (Johnson).

VII.

With a view to finding out the possible effects of monsoon rains which bring about considerable salinity dilution in the inshore waters, preliminary studies have been carried out on *Petrolisthes rufescens*, a most common intertidal species of Karwar, with reference to tolerance to salinity dilutions.

This species is observed to tolerate up to as low as about 10 ppt but not lesser salinity, thereby possibly explaining its marine nature and also its inability to penetrate into estuarine zone.