

- pinkish tinge) distinctly ribbed to base (on drying) .. 2. *B. sexangula*
2. Flowers (2-) 3(-5) in pedunculate cymes, less than 2 cm long:
- iii. Calyx tube smooth; lobes nearly equal to tube, completely reflexed in fruit .. 3. *B. cylindrica*
- iv. Calyx tube ribbed; lobes 1/4 -1/5 the length of tube, erect or slightly spreading in fruit. .. 4. *B. parviflora*

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#### A NOTE ON THE OSTRACODE FAUNA FROM THE QUILON BEDS (LOWER MIOCENE) OF KERALA

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THE Quilon beds of Kerala have been known to geologists since 1854, when they were first described by Carter<sup>1</sup>, based on the collection by General Cullen. The surface exposures of these beds are scarce, confined to 2-3 meters thick beds, exposed

at the base of sea cliffs near Padappakkara (8° 58':76° 38'), Paravur (8° 49':76° 46') and Edavai (8° 46':76° 41'). Investigations carried out for groundwater and hydrocarbons reveal that the beds, however, occur quite extensively at the subsurface level along the Kerala coast attaining 50-150 m in thickness<sup>2</sup>.

The Quilon beds are very rich both in micro- as well as mega-fauna. Numerous papers pertaining to the stratigraphy and palaeontology of these beds have been published. However, the ostracodes have not received much attention from the micropalaeontologists. The occurrence of a few species has been recorded by different investigators<sup>3-9</sup>. Only 3 species have been described and illustrated from these beds. They are *Miocyprideis thirukkaruvensis* and *Triebelina quilonensis* by Guha and Rao<sup>4</sup> and *Gujaratella quilonensis* by Khosla and Nagori<sup>9</sup>.

In order to study the ostracode fauna of the Quilon beds, samples were collected from the known surface exposures (*supra cit.*). Besides, (through the courtesy of Kerala State Ground Water Department, Trivandrum) samples of the Quilon beds were also obtained from four subsurface sections: Sankaramangalam well 4 (8° 59' 45": 76° 32' 15") 31.39 to 247.79 m depth; Thevally well (8° 53' 45": 76° 36' 45") 28.34 to 247.79 m depth; District Hospital Quilon well (8° 53': 76° 53') 124.96 to 125.88 and 75.89-79.96 depth, and Mayyanad well (8° 50': 76° 39') 19.20 to 20.12 m depth. With the exception of Edavai section (probably due to collection failure) all other sections yielded a rich and excellently preserved ostracode assemblage comprising in all 97 species. The object of the present note is to place on record this assemblage. Detailed systematics is in hand and will be published elsewhere.

Of the 97 ostracode species recorded the following 49 species have been assigned to the already known species from India and elsewhere (those marked by \* are common to the recorded species from Kerala by earlier workers): *Actinocythereis gujaratensis* Tewari and Tandon, \**A. tumefaciens* (Lubimova and Guha), *A. vinjhanensis* (Tewari and Tandon), \**Alococythere fossularis* (Lubimova and Guha), *A. gujaratensis* Khosla, "*Archicythereis*" *pulchra* (Lubimova and Guha), \**Asymmetrythere mutata* (Lubimova and Guha), *Bairdoppilata rajnathi* Tewari and Tandon, *Bicornocythere secedens* (Lubimova and Guha), *Caudites gujaratensis* Khosla, *Cletocythereis bradyi* Holden, \**Cytherella protuberans* Lubimova and Guha, *Cytherelloidea bar-*

*khanensis* Tewari and Tandon, *C. chaasraensis* Guha, \**C. costatruncata* Lubimova and Mohan, \**C. cutchensis* Lubimova and Guha, *C. insolens* Lubimova and Guha, \**Cytheretta (Flexus) trifurcata* Lubimova and Guha, \**Cytherura interposita* Lubimova and Guha, *Dentokrithe autochthona* (Lubimova and Guha), *Gujaratella boldi* Khosla, \**G. quilonensis* Khosla and Nagori, *Hemicyprideis kachharai* Khosla, *Hermanites purii* Tewari and Tandon, *Krithe papillosa* (Bosquet), \**Loxoconcha (Loxoconcha) confinis* (Lubimova and Guha), *Macrocypris decora* (Brady), \**Miocyprideis chaudhuryi* (Lubimova and Guha), \**M. thirukkaruvensis* Guha and Rao, *Morkhovenia inconspicua* (Brady), *Murthya chadopadiensis* (Lubimova and Guha), \**Neomonoceratina gajensis* Guha, \**N. kutchensis* Guha, \**Paijenborchellina prona* (Lubimova and Guha), *Paracypris pandyai* Khosla, \**Paracytheridea perspicua* Lubimova and Guha, *Paranesidea gajensis* Khosla, *Phlyctenophora chauhanu* Khosla, \**P. meridionalis* (Lubimova and Mohan), *Pokornyella alata* Khosla, \**P. chaasraensis* (Lubimova and Guha), *P. pindaraensis* Khosla, *Propontocypris (Propontocypris) sp. cf. P. (P.) herdmani* (Scott), \**Stigmatocythere chaasraensis* (Guha), \**S. latebrosa* (Lubimova and Guha), *S. reversa* Khosla, \**Tenedocythere saurashtraensis* (Guha), *Xestoleberis nana* Brady, and *X. tumida* Scott.

The remaining 48 species, probably new, belong one each to the genera: *Acanthocythereis*, "Archicythereis", *Aurila*, *Bairdoppilata*, *Bradleya*, *Bythoceratina*, *Cytherella*, *Dentokrithe*, *Falsocythere*, *Hermanites*, *Lankacythere*, *Loxoconcha*, *Neonesidea*, *Occultocythereis*, *Ornatoleberis*, *Pseudocythere*, *Quadrableberis*, *Radimella*, *Ruggieria*, *Semicytherura*, *Tenedocythere*, two each to *Alocopocythere*, *Chrysocythere*, *Cytherelloidea*, *Loxoconchella*, *Miocyprideis*, *Pachycaudites*, *Paracytheridea*, three to *Pokornyella*, four to *Neomonoceratina* and six to *Stigmatocythere*.

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### DID THE DINOSAURS CROSS OVER TO TERTIARY IN INDIA?

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THE concept that dinosaurs became extinct at the close of the Mesozoic era has been in vogue for a long time. However, there are indications supporting that dinosaurs had really seen the dawn of the Tertiary era. As far back as 1965, hadrosaurian dinosaurs were recorded from the Danian (Palaeocene) of Argentina<sup>1</sup>. Later, egg shells of dinosaurs were described from the sediments of Laguna Umayo, Peru<sup>2</sup> which are now considered to be Palaeocene on the basis of the placental *Perutherium*—an advanced ungulate<sup>3</sup>. A little north, dinosaur is known from southwest Texas sediments having Palaeocene—like pollen flora<sup>4</sup>. Even in Europe, dinosaur egg shells of Palaeocene have been dated in the Red Bed facies of the late Cretaceous to early Tertiary passage beds in the Southern France and Spanish Pyrenees<sup>5</sup>. Thus, we have evidence, both from southern as well as northern hemisphere, suggesting that dinosaurs were not wiped out completely from the face of the earth with the close of the Mesozoic era.

In India, dinosaurs have themselves been utilized to date the infra and the inter-trappean sediments as Cretaceous<sup>6-10</sup>. Whereas, the flora<sup>11,12</sup>, the fish fauna<sup>13,14</sup>, the foraminifera<sup>15</sup> and other fossils support a younger age of some of the infra- and the inter-trappeans, the sediments in which dinosaurs, are found. This situation is evidently the result of the belief entrenched in our minds that the presence of dinosaurs in Tertiary is to be brushed aside. But, if we carefully scrutinize the literature, we find that