This note reports the occurrence of an annelid and a few molluscan fossils from the upper Bhuban Formation of a new fossil locality Tlabung, Lunglei District, Mizoram. Their presence indicates low intertidal to very shallow marine conditions in the region during the period of deposition.

Introduction

The general stratigraphy of Mizoram, a state lying in the easternmost part of India, is given by Karunakaran (1974) and Ganju (1975). Three groups, viz., Barail (Oligocene), Surma (upper Oligocene to middle Miocene) and Tipam (late Miocene to early Pliocene) are present in the region. The Surma Group is further divided into two formations, namely Bhuban and Bokabil, the former again subdivided into lower, middle and upper units. The main rock types in the region are sandstones, shales, mudstones and their admixture in various proportions. The contact between these stratigraphic units are transitional in nature (Table 1).

In order to enrich the record of flora and fauna of Mizoram, a field trip was planned by one of us (BDM) to collect the plant and animal remains from various Tertiary exposures of the state. Many micro- and mega-remains were collected from there. A coral and a few foraminifers of marine origin have already been reported from there by Jauhi et al. (2003), while the study of the rest of the forms are in progress. In the present communication, poorly preserved internal moulds of four molluscan remains and an annelid form are being reported from the fossil locality Tlabung (23°02' N; 92°28' E), Lunglei District, Mizoram. The location of the fossil locality, along with the litholog has been depicted in Fig. 1. Tiwari and Kachhara (2003) have confirmed the presence of the upper Bhuban Formation in the Lunglei District of Mizoram. The age of this formation

<table>
<thead>
<tr>
<th>Age</th>
<th>Group</th>
<th>Subgroup</th>
<th>Formation</th>
<th>Thickness (m)</th>
<th>Generalised Lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent Alluvium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Silt, clay and gravel</td>
</tr>
<tr>
<td>Early Pliocene</td>
<td>Tipam</td>
<td>Late Miocene</td>
<td></td>
<td>+900</td>
<td>Friable sandstones with occasional clay bands</td>
</tr>
<tr>
<td>Miocene to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Conformable and transitional contact</td>
</tr>
<tr>
<td>Upper</td>
<td>Bokabil</td>
<td></td>
<td></td>
<td>+950</td>
<td>Shales with siltstones and sandstones</td>
</tr>
<tr>
<td>Oligocene</td>
<td>Bhuban</td>
<td></td>
<td></td>
<td>+100</td>
<td>Arenaceous with sandstones, shales and siltstones</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Conformable and transitional contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+3000</td>
<td>Argillaceous with shales, siltstones</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Conformable and transitional contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+900</td>
<td>Arenaceous with sandstones and silty shales</td>
</tr>
<tr>
<td></td>
<td>Barail</td>
<td></td>
<td></td>
<td>+3000</td>
<td>Shales, siltstones and sandstones</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower contact not seen</td>
</tr>
</tbody>
</table>

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is considered as Aquitanian-Burdigalian (Lower Miocene) on the basis of its fauna of bivalves, gastropods, echinoids and crabs (Tiwari and Kachhara, 2000).

La Touche (1891) first recorded an echinoid fossil, *Schizaster* sp., from the Lunglei area. Since then a number of workers reported many animal remains such as foraminifers, ostracodes, echinoids, crabs, bivalves, gastropods, corals, shark teeth etc. from Mizoram (Das Gupta, 1977; Tiwari, Barman and Satsangi, 1977; Tiwari and Satsangi, 1988; Tiwari, Mishra and Lyngdoh, 1998; Tiwari and Kachhara, 2000, 2003; Tiwari and Bannikov, 2001; Jauhri et al. 2003).

The preliminary description of the presently recorded invertebrate fossil specimens is based mainly on Moore (1971), Murray (1985), Lorenz and Hubert (1993) and Dayle (1999-2003). The fossil specimens have been deposited in

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**Fig. 1.** Map of India showing the fossil locality and litholog of the area.
the museum of the Birbal Sahni Institute of Palaeobotany, Lucknow.

**SYSTEMATIC DESCRIPTION**

**Phylum:** Annelida  
**Class:** Polychaeta  
**Order:** Sabellida  
**Family:** Serpulidae (Fig. 2a)

This is a Serpulid worm tube and looks similar to Serpula. The tube is hard, calcareous, appearing segmented and is about 5 mm in diameter and 10 cm in length, if uncoiled. The anterior prostomium is broken, while the posterior pygidium could not be observed due to the coiling of the tube. The base of the tube is attached to the hard substrate made up of coralline algae and the feeding end growing up, presumably above the substrate into the water. Serpula represents estuarine as well as coastal environment and can also be found in low intertidal zone. The family has a worldwide distribution (except polar seas) in sheltered sites.

**Figured Specimen:** Museum No. BSIP 39116.

**Phylum:** Mollusca  
**Class:** Gastropoda  
**Subclass:** Prosobranckia  
**Order:** Mesogastropoda  
**Super Family:** Cypraeacea  
**Family:** Cypraeidae (Fig. 2c)

Body whorl is usually involute and completely enclosed by the final whorl, aperture slit-like and shell oval and smooth, about 2.8 cm in diameter. It appears to be an internal mould of a gastropod of the family Cypraeidae which ranges in age from Upper Cretaceous to Recent. The members of it are mainly herbivores and usually found in the tropical and subtropical shallow marine environment. However, there are some forms which prefer shallow to relatively deep water habitat.

**Figured Specimen:** Museum No. BSIP 39117

**Super Family:** Cerithiacea  
**Family:** Turritellidae (Fig. 2b)

Multiwhorled shell with strong spiral ribs, four whorls visible, about 4 cm in length and 2 cm in width; aperture broken but appearing simple. This is an internal mould of the Turritellid gastropod. It is also marine and can be very common in/on soft substrates. The family is known from the Indo-Pacific and Mediterranean regions and ranges in age from Cretaceous to Recent.

**Figured Specimen:** Museum No. BSIP 39118.

**Phylum:** Bivalvia  
**Class:** Pteriomorphia  
**Order:** Pterioida  
**Super Family:** Ostreacea  
**Family:** Ostreidae (Fig. 2f)

Shell is hard, calcareous and the outline is variable and flattish with tooth-like projections at the margins. The shell is about 5 cm in length and ranges 3-3.5 cm in width. It is an oyster which belongs to the bivalve of the family Ostreidae. taxa of the family range in age from Cretaceous to Recent and are distributed in Southeast Asia, Australia and the Indian Ocean. They are intertidal on rocks and prefer shallow marine relatively high energy environment.

**Figured Specimen:** Museum No. BSIP 39119.

**Super Family:** Cerithiacea  
**Family:** Turritellidae (Fig. 2d, e)

Shells inequilateral, subtrigonal to trigonally suboval with possible central teeth pivotal, exterior smooth and about 5 cm in size. They belong to the internal mould of an infaunal bivalve of the family Veneridae and range in age from Eocene to Recent. They are typical for soft substrates and are burrowing forms that live a few centimetres underneath the surface and colonize the sandy bottom. The family Veneridae has over 400 living species.

**Figured Specimens:** Museum Nos BSIP 39120 and 39121.

Based on the above taxa and the already known animal remains from Mizoram it could be suggested that an estuarine and low intertidal to shallow marine conditions existed there during the period of deposition. The above interpretation gets further support from the finding of a coastal palm Nypa (Mehrotra et al. 2003) and an ichnofossil Teredolites clavatus (Mehrotra et al. 2001) from the Upper Bhuban Formation of Mizoram that indicate warm water, shallow marine transgressive phase of deposition of the Surma sediments in the region.

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SHORT COMMUNICATION

Fig. 2. (a) A serpulid worm tube. x 1.3; (b) An internal mould of Turritellid gastropod. x 1.7; (c) An internal mould of a gastropod of possible family Cypraeidae. x 1.9; (d) Internal mould of an infaunal bivalve of the family Veneridae. x 1.8; (e) Internal mould of another infaunal bivalve of the same family. x 1.6; (f) An oyster. x 1.5.
Acknowledgements: The authors are grateful to Prof. Nabelsick of Germany for his help and advice in the identification of the samples. They are also thankful to the Director, Birbal Sahni Institute of Palaeobotany, Lucknow for the permission and facilities to do this work.

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