Proximal Features of Thick-Bedded Sandstones in Eocene Flysch Sequence, Rih Area, Chin State, Myanmar

Myo Min[1] and Khin Khin Lin[2]

[1]Department of Geology, University of Yangon, Myanmar(myominlin@gmail.com)
[2]Associate Professor, Department of Geology, Shwebo University, Myanmar

Abstract

Rih Lake is situated in Falam Township, Chin State, Myanmar. It is a well-known lake for its heart-shaped outline and scenic views. Communication between Rih Lake and its nearest town is very difficult, especially in rainy season. Rihkhawdar is situated on a hillock, very close to the lake. Khawmawi (a) Tio va village, situated on Myanmar-India border, is about two miles away from the lake.

The flysch sequences exposed near Rih Lake and its environs are made up of four main rock types, viz. (1) laminated siltstone-fine sandstone; (2) thin-bedded sandstones (less than 30 cm) which are usually graded; (3) thick-bedded sandstones (0.3-2.5 m) which are commonly non-graded or poorly graded and may show either dish and pillar structures or wavy lamination; and (4) pebble- to conglomerates, many of which are graded. Lateral gradations from conglomerate to sandstone to siltstone occur within some beds and there are abundant intermediate types between the four groups, so that a common origin for all rock types from the one kind of current seems inescapable.

The sandstones of the Rih Lake and its environs are composed of detrital framework of about 70 %, matrix and chemical cement of 30%. Detrital frameworks are made up of mostly detritus sediments and in then are mineral grains and rock fragments. Mineral grains are composed of quartz 83 %, feldspar 14 % and other constituents of biotite, muscovite, pyrite, magnetite, sphene 3 %. Shale fragments are abundant in some beds. The majority of beds consists of medium to fine sand and is well sorted. A marked improvement in sorting commonly occurs at the base of the flat-laminated division, due to removal of many of coarser grains and much of the mica The Eocene flysch sequence of Rih area includes a number of thick-bedded, generally non-graded or poorly graded sandstones as well as normal graded sandstones (turbidites), laminated siltstones, conglomerates, and shales. Most of the thick beds occur in composite units up to 60 m or so thick, within which there is interfingering and inter-grading with thinner sandstones, and frequent amalgamation of beds. The composite units are separated by siltstone sequences, and in some cases at least appear to be large lenses. They are interpreted as being mainly channel deposits in submarine fan complex.

A number of beds also show a faint to prominent wavy or scoop-like lamination in the basal division, and this is commonly underlain by a thinner unit of contorted and balled-up lamination. The complete sequence shown by such beds is as follows: (1) basal division of contorted lamination; (2) division of wavy lamination or dish structure; (3) division of flat lamination with parting lineation; (4) division of cross-lamination and ripple mark. Many of the thick beds are either structureless throughout or have only a thin division of flat lamination (with parting lineation) near the top, followed in some cases by ripple mark. Some beds, however, show unusual wavy lamination or “dish structure” beneath the flat lamination, and this in turn may be underlain by bioturbated sand/siltstone. Trace fossils of *Scolicia plana*, *Scolicia prisca*,

Granularia, *Spriophycus*, *Cosmorhaphe*, and *Chondrites* are well developed. Narrow vein-like de-watering channels (elutriation columns) occur in the wavy-laminated division of some beds.

The thick beds from a gradational series with the normal graded beds, and apparently represent the over-thickened basal parts of such beds, i.e., they are lateral variants of the normal turbidites. Similar beds called “sandy high-density turbidity current deposits” also appear to be proximal turbidites. The origin of the wavy lamination and dish and pillar structures are deposited by the direct sedimentation of a coarse-grained high-density suspension.