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MIANWALI GROUP REDEFINED

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We are all aware that the Lower Triassic terminology in the Potwar Basin is quite muddled with numerous stratigraphic names which are either misleading or overlapping. Even in the working papers of the Stratigraphic Committee and the publications of the Geological Survey and the AID group since 1964, there are several contradictions.

Krishnan (1956) and Wadia (1966) have followed the older terminology of the Geological Survey of India and all the terms in their textbooks may now be considered obsolete. Gee (in Pascoe, 1959, p. 852) included Ceratite Beds, Kingriali Sandstones and Kingriali Dolomite in his 'Mianwali Series'. On a request of the Stratigraphic Committee, Gee in a written communication sugested that the Kingriali Sandstones be replaced by Khatkiara Sandstone. Later another name, Tredian Sandstone, was introduced (the definition is not available and the author is presumably Gee). This term is mentioned particularly as it is repeatedly referred to in the papers of Kummel and Teichert (1966) and Danilchik and Shah (1967) and needs clarification in its definition and scope.

The term Mianwali Group first appeared in the literature in Pakistan in a paper of Teichert (1965, p. 4) and later Danilchik and Shah (1967) also introduced the name for the group consisting of three formations, Mittiwali, Narmia and Landa. Kummel and Teichert revised the terminology and considered the Mianwali as a formation with the Mittiwali etc. as members (Kummel and Teichert, 1966, p. 310). A chart showing the various usage is given below:

<table>
<tr><th>KRISHNAN, WADIA
1960 1960</th><th>GEE, PASCOE
1959</th><th>G.S.P. CHART
1965</th><th>TEICHERT
1965</th><th>KUMMEL & TEICHERT
1966</th><th>HUSAIN
1968</th><th>RAHMAN
1968</th><th>WORKING PAPERS
1969</th><th>PROPOSALS
1969</th></tr>
<tr><td>Variegated Series</td><td>Variegated Series</td><td colspan="2">Datta Fm</td><td></td><td>Datta Fm</td><td>Datta Fm</td><td>Datta Fm</td><td>Datta Fm.</td></tr>
<tr><td>Kingriali Dolomite</td><td>Kingriali, Dolomite</td><td colspan="2">Kingriali Dolomite</td><td></td><td>Kingriali Dolomite</td><td>Kingriali Fm</td><td>Kingriali Fm</td><td>Kingriali Fm</td></tr>
<tr><td rowspan="2">Kingriali Ss

Ceratite Beds</td><td rowspan="2">MIANWALI SERIES
Kingriali Ss
Ceratite Beds</td><td>No name for Fm. proposed</td><td>Khatkiara Ss.
Landa Fm.</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">Khatkiara Ss
Tredian Ss</td><td>Tredian Fm
Khatkiara Ss mbr
Landa mbr.</td><td>Khatkiara Ss
Landa Fm.</td></tr>
<tr><td>No name for Fm. proposed</td><td>Narmia
Mittiwali
Kamwal</td><td>Mianwali Group
Mianwali Fm
Landa mbr
Narmia mbr
Mittiwali mbr</td><td>Mianwali Group
Narmia Shale Fm
Mittiwali mbr
Kathwal Dolomite mbr</td><td>Mianwali Fm</td><td>Mianwali Formation
Narmia mbr
Mittiwali mbr</td><td>Mianwali Group
Narmia Shale
Mittiwali Fm. with Kamwal Dolomite mbr at base.</td></tr>
</table>

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Thus it is apparent that the term 'MIANWALI' as a group or formation name has inherent ambiguity and poses a number of problems as given under:

1. Is there a need for Mianwali as a prefix for a Group or Formation?
2. Are Mittiwali, Narmia and Landa mappable units and if so, what prevents us from accepting them as formations as proposed by Danilchik and Shah (1967, p. 4)?
3. Should Landa Formation be included under the same group as Mittiwali and Narmia or grouped together with Khatkiara Sandstone under Tredian Group?
4. Is there a need for a Tredian Group?
5. Could we not retain Landa and Khatkiara as individual and separate formations?

1. The choice of Mianwali is rather unfortunate both as a group or formation name; it lies in the middle of the Indus alluvial plain and the nearest section is 30 miles away. In the selection of stratigraphic names, care was taken, particularly in the case of formational names, to choose the locality nearest to the type section, or a principal section in the case of a group name. In this case, if there was a necessity for a new name, Musa Khel would have been more appropriate.

In my own mind the grouping together of Mittiwali, Narmia and Landa is rather arbitrary as there is considerable variation in the lithology and fauna. The only similarity I can gauge is that all these rocks are Triassic in age, the lower two of Early Triassic, while the age of the Landa Formation is not defined properly.

Again if we accept the concept of group for these formations, discussed below, need we continue with 'Mianwali', particularly in view of its distance from the type and principal sections?

2. Danilchik and Shah (1967) found the rocks of the three units can be mapped in the field as individual units throughout the Surghar Range and Trans Indus Ranges and proposed that they be considered as Formations. In the Khisor Range, the units can be traced and mapped as Formations (Husain, 1968). In view of this, it is suggested that the three or two Formations (as discussed below in 3) be designated as Formations within the Mianwali or Musa Khel Group. If we accept Mianwali as a formation, then no place has been left for the Kathwai Dolomite.

3. There was considerable discussion in the meetings of the Stratigraphic Committee held in Karachi and Quetta on the lithological composition, and the suggestion of the Oil and Gas Corporation geologists that the Landa be separated from the

rest of the 'Ceratite Beds' was accepted. Their contention was that a break in sedimentation occurs at the top of the Narmia when the first sandstones make their appearance. It may be mentioned that Husain (1960, 1968) described a disconformity between the Ceratite Beds and these sandstones, and it is also seen in the Surghar, Trans Indus and the Salt Ranges. The disconformity near Pania may be a result of close proximity of the area to the Mianwali Tank Basement High.

Thus it appears that there are good arguments that the Landa Formation be separated from the rest of the Mianwali Group.

4 and 5. Kummel and Teichert (1966, p. 310) considered Tredian as a formation with an upper Khatkiara and a lower Landa Sandstone as members. Danilchik and Shah (1967, p. 5) had proposed the name Khatkiara for a new formation and Landa Formation for the upper part of the Mianwali Group. Both these geologists left no doubt that the two were mappable units and traceable throughout the Trans Indus Ranges. At the seventh meeting of the Stratigraphic Committee it was also generally accepted that the Landa and the Khatkiara were to be grouped together as members within a formation. In the chart published in 1965 the Landa and Khatkiara were given the status of formations and part of the Tredian Group. Perhaps this was done at the suggestion of Gee and I have an open mind about accepting Tredian as a group name.

CONCLUSIONS

These comments are summarised below for the consideration of the members of the Stratigraphic Committee:

1. 'Mianwali', if at all retained in the nomenclature, must be restricted to a group name only.
2. The 'Mianwali Group' should embrace only the Mittiwali and Narmia Formations and the Kathwai Dolomite Member be assigned to the lower part of the Mittiwali Formation.
3. Landa and Khatkiara may be assigned separate formational status and if necessary, be included under the Tredian Group which may then be defined according to the notes and letter of Dr. Gee on this subject.

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