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Discovery and significance of Cretaceous fossils from the Xigaze Forearc Basin, Tibet

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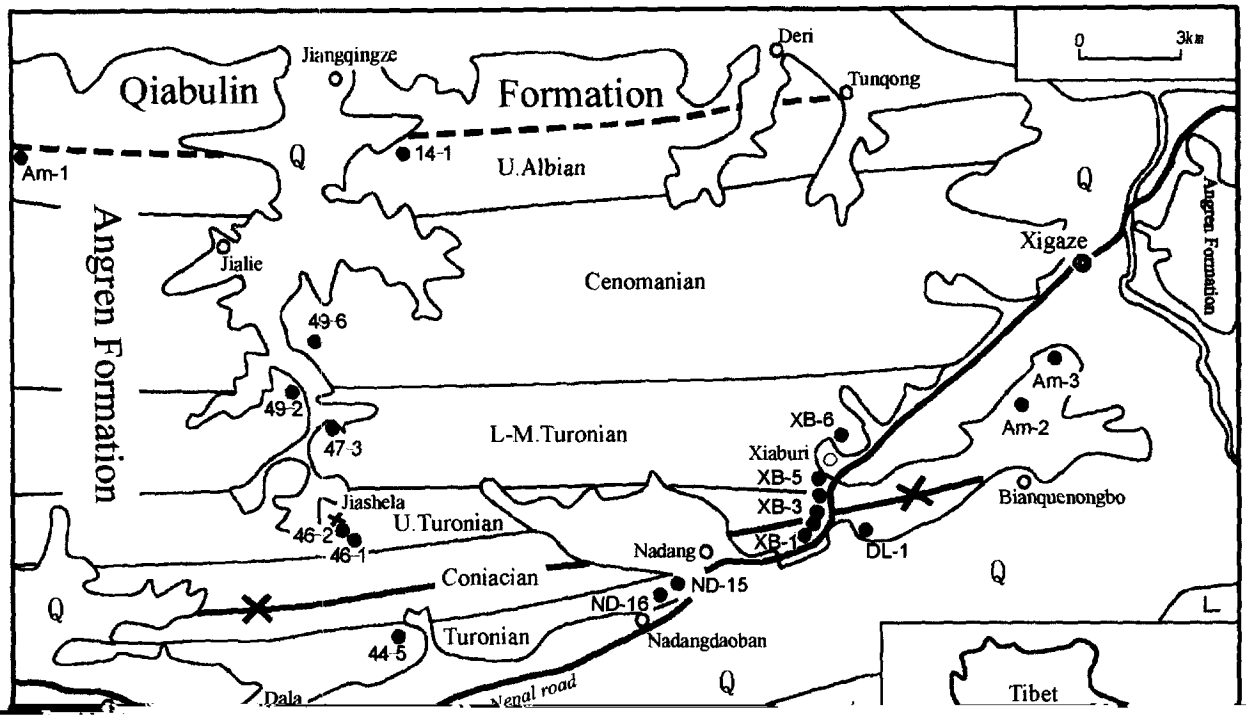
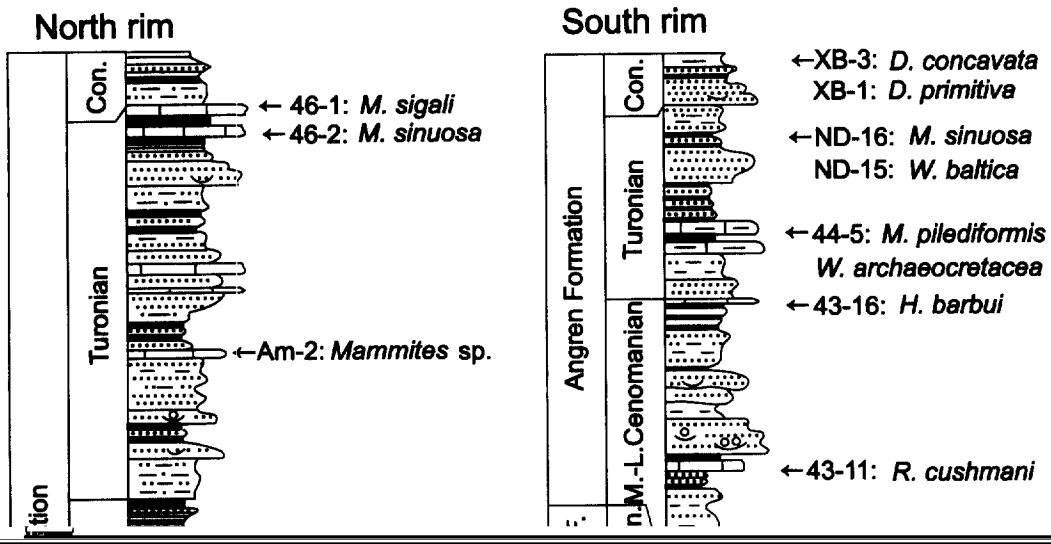
Abstract—The Xigaze Cretaceous forearc basin located between the Lhasa Block and Indus-Yarlung Suture was filled with flysch deposits during the mid-Cretaceous, as the Tethys oceanic crust was being subducted underneath Eurasia. The flysch comprises the Xigaze Group, dominated by the Angren Formation. Well preserved [redacted] foraminifera within the Angren F[redacted] mation constrain its age to late Albian to late Coniacian. Radiometric dating of the ophiolite belt impinging on the southern edge of the forearc basin yielded an age of 120 + 10 Ma, which implies that the deposition in the forearc basin occurred shortly after initiation of the subduction of the Neotethys.

Introduction

Shixuan, 1974; Wu Haoruo *et al.*, 1977). This group


Qiabulin
Formation
Jianggingze
Deri
Tunqong
0
3km
Am-1
Q
14-1
U.Albian
Angren Formation
Jialie
Cenomanian
Xigaze
Angren Formation
49-6
Am-3
49-2
47-3
L-M.Turonian
XB-6
Am-2
Xiaburi
XB-5
XB-3
XB-1
Bianquenongbo
Jiashela
46-2
46-1
U.Turonian
Nadang
DL-1
Coniacian
ND-15
ND-16
Q
L
Turonian
Nadangdaoban
44-5
Dala
Nepal road
Tibet


North rim
South rim
Con.
Turonian
tion
← 46-1: M. sigali
←46-2: M. sinuosa
←Am-2: Mammites sp.
Angren Formation
Con.
Turonian
n.M.-L.Cenomanian
←XB-3: D. concavata
XB-1: D. primitiva
←ND-16: M. sinuosa
ND-15: W. baltica
←44-5: M. plediformis
W. archaeocretacea
←43-16: H. barbui
←43-11: R. cushmani

ND16: Greyish yellow marl contain a few foraminifera such as *Marginotruncana sinuosa* Porthault.

Section south from Xiaburi

DL-1: Greyish yellow calcareous mudstone, yielding a few specimens of *Hedbergella delrioensis* (Carsey).

XB-1: Yellowish grey marl yielding many planktonic

Marginotruncana sigali (Reichel), *Lenticulina* sp.

XB-2: Yellowish marl intercalated in black shale with few specimens of *Lenticulina* sp.

Formation and therefore they provide better biostratigraphic control.

The oldest fossil assemblage in the Angren Formation is represented by sample 14-1. The corals

ger foraminifera *Orbitolina* spp. is of Aptian–Albian age in this region. The ammonite *Neophlycticeras* (*N.*) *brottianum* which belongs to the *Mortoniceras inflatum*

the sample 14-1 and is considered to be of an early late Albian age. Accordingly, the sample 14-1 is younger than early late Albian and its age is con-

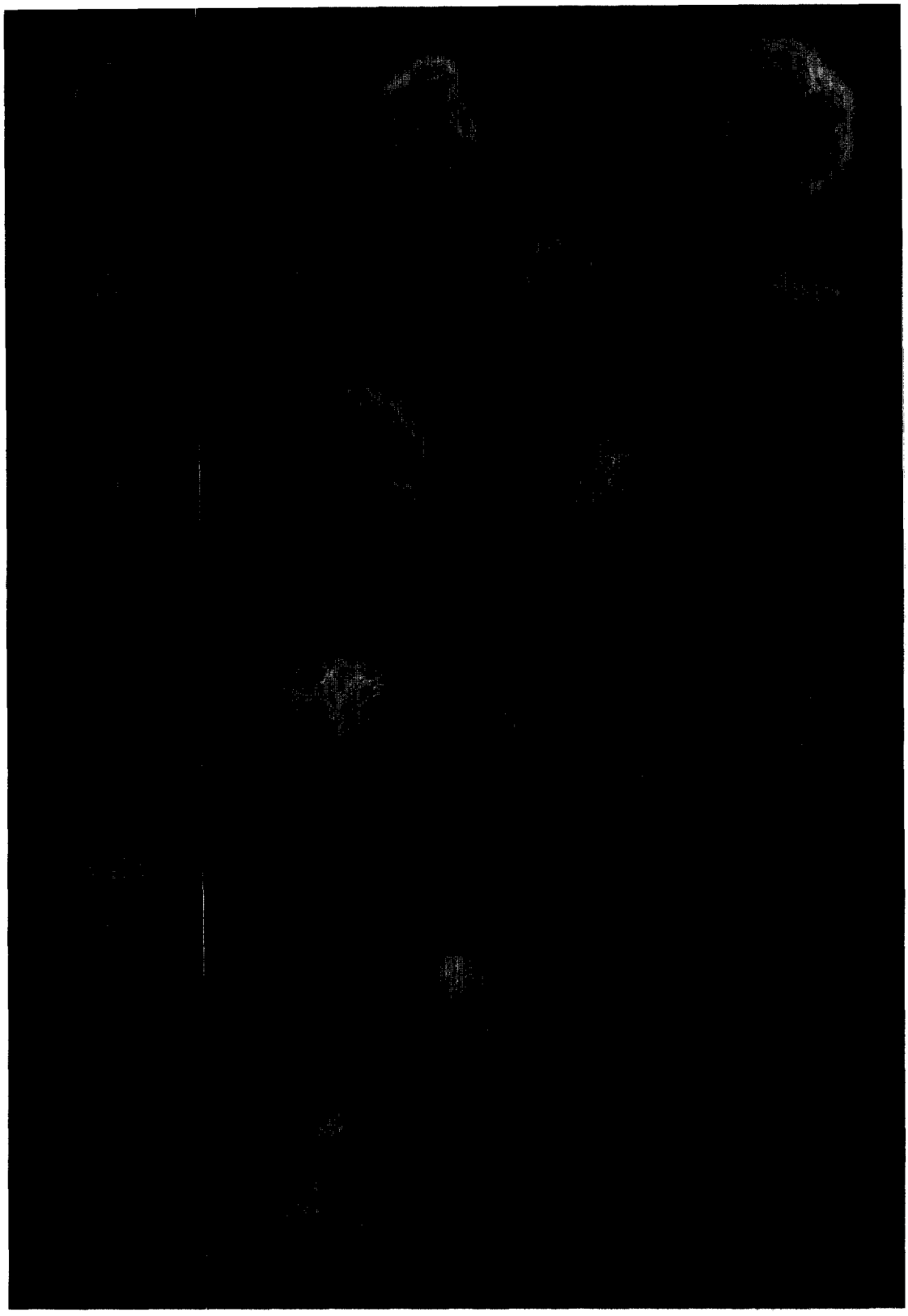


Fig. 3. SEM photomicrographs of Cretaceous foraminifera from Xigaze, Tibet. All specimens are deposited in the China University of Geosciences (Beijing). (1) *Hedbergella delrioensis* (Carsey) dorsal side; Sample ND15. ×160. (2) *Hedbergella planispira* (Tappan) 2a. dorsal side; 2b. ventral side. sample 4311. ×160. (3) *Hedbergella holmdelensis* Olsson 3a. dorsal side; 3b. ventral side. sample4311, ×160. (4) *Whiteinella inornata* (Bolli) 4a. dorsal side; 4b ventral side. Sample ND2, ×80. (5) *Whiteinella archaeocretacea* Pessagno 5a. dorsal side; 5b. ventral side. Sample 445. ×80. (6) *Whiteinella hal*

late Cenomanian *R. cushmani–H. barbui* assemblage; Turonian *Mammites* assemblage; middle Turonian *M. pilediformis–W. archaeocretacea* assemblage; late Turonian *M. sinuosa–M. sigali* assemblage; early Coniacian *D. primitiva* assemblage; and late Coniacian *D. concavata* assemblage.

Discussion

of the Lhasa Block developed from late Albian to late Coniacian. The Aptian age of the Indus–Yarlung ophiolites (Gopel *et al.* 1984) indicates that the development of the forearc basin began early after initiation of the subduction of Neotethys. The new biostratigraphic data constrains the initiation of subduction of the Neotethys to early Albian.

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